Systems Plan Update
for the
Tahoe Truckee Area Regional Transit in
Eastern Placer County

Prepared for the

County of Placer

Prepared by

TRANSPORTATION CONSULTANTS, INC.

LSC Transportation Consultants, Inc.

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Chapter 1
Introduction

Placer County has been providing public transit services in eastern Placer County and adjacent areas under the Tahoe Area Regional Transit (TART) appellation since 1975. Since the adoption of the most recent plan (*Tahoe Area Regional Transit Systems Plan*) in 2005, the importance of public transportation services has grown, in terms of ridership as well as to regional economic and environmental goals.

Beginning in 2012, the North Lake Tahoe Resort Association (NLTRA) and the Truckee North Tahoe Transportation Management Association (TNT/TMA) have been leading a regional effort to expand public transit to match the quality of service provided in many similar mountain resort areas. This "Transit Vision" effort has included a series of annual transit summits, as well as technical analyses of operational strategies, financial strategies, and economic benefits. The resulting Transit Vision focuses on improvements in service frequency, expansion of the hours of service, and elimination of transit fares. This current plan is intended to focus specifically on transit program enhancements consistent with the Transit Vision that are the implementation responsibility of Placer County, within the larger Vision structure.

The Placer County TART program was recently rebranded, along with the Town of Truckee's transit program, into a single region wide Tahoe Truckee Area Regional Transit brand. This includes a consistent public image (logo, signage, and bus paint scheme), combined marketing pieces, and single combined telephone information service and internet presence. This planning process, however, focuses on Placer County's directly operated service, and does not include plans for the parallel Town of Truckee services.

This document represents a focused systems plan rather than a traditional short range transit plan. This is appropriate because of the three years of work that preceded this systems plan related to the Transit Vision Plan. This focused scope includes (1) a concise review of existing service area characteristics, (2) a summary and evaluation of existing transit services (including the results of an onboard passenger survey), and (3) a short-range (five year) service, capital, management and financial plan for the Placer County TART program.

Placer County staff will continue to work with TRPA to incorporate the TART Systems Plan Update into a long range transit plan for the entire Tahoe basin. This longer range transit plan will also be coordinated with broader regional transportation studies such as the Trans-Sierra Transportation Plan and the Corridor Connection Plan. The Trans-Sierra Transportation Plan encompassed 11 counties and included the Placer County Transportation Planning Agency (PCTPA), Tahoe Transportation District (TTD) and Tahoe Metropolitan Planning Organization (TMPO) to study travel into the region and assembles plans and strategies to address the impacts. The Corridor Connection Plan, being led by the TTD, TMPO and TRPA, is more focused on multi-modal corridor level planning within the Tahoe Basin. The TART Systems Plan will also be incorporated into the Regional Transportation Plans of both the TRPA and the PCTPA.

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Chapter 2
Study Setting

The focus of this plan is the eastern portion of Placer County encompasses the unincorporated areas east of the Sierra Crest. It is bounded by Nevada County, California (including the Town of Truckee) to the north, Washoe County, Nevada to the east, and El Dorado County, California to the south. It includes the West Shore and North Shore of Lake Tahoe, the Truckee River Canyon and adjacent Olympic Valley and Bear Valley areas, as well as the Martis Valley area. It includes mountain resorts (Squaw Valley, USA, Alpine Meadows Ski Area, Northstar California, and Homewood Mountain Resort), commercial activity centers (including Homewood, Tahoe City, Kings Beach, Northstar Village, and Squaw Valley Village), state parks and state recreation areas, and a wide variety of residential and recreational centers.

Eastern Placer County is part of a larger North Tahoe / Truckee region. Reflecting this, the Placer County TART system (through intergovernmental agreements) also serves Crystal Bay (North Stateline) and Incline Village, Nevada and Truckee, California.

Population

Table 1 presents US Census population figures from the 2000 and 2010 decennial censuses, as well as the 2014 American Community Survey estimates. The population of the general area served by TART currently (as of 2014, the most recent data available) stands at 37,676, including all of eastern Placer County, the Incline/Crystal Bay portion of Washoe County, Nevada, the Town of Truckee, as well as the Tahoma/Rubicon Bay portion of El Dorado County, California. Of this, 12,809 live in eastern Placer County, consisting of 9,832 in the Tahoe Basin, 1,829 in the Martis Valley area, and 1,148 in the census tract encompassing Squaw Valley, Alpine Meadows and Serene Lakes.

Note that select 2000 Census Tracts differ from the 2010/2014 Census Tracts. Overall, most of the 2000 Census Tracts are comparable to one or more of the 2010/2014 Census Tracts, allowing for a valuable evaluation of demographic change throughout the years. However, as the 2010/2014 Census Tracts encompassing the Martis Valley/Squaw Valley/Alpine Meadows Area geographically differ from the corresponding 2000 Census Tracts (which included portions of Colfax), the 2000 Census Tracts are omitted from this analysis. It should also be noted that there are differences in data collection between the decennial census and the 2014 sample data that affect the trends.

The available comparable population data indicates the following trends:

- The population of the Tahoe Basin portion of eastern Placer County dropped considerably (23 percent) between 2000 and 2010. However, it is estimated to have increased by 5 percent from 2010 to 2014.

TABLE 1: TART Service Area Population

Area	2010, 2014 Census Tract	2000 Census Tract	Total Persons			Youth (10-17)			Elderly (60+)			Persons with a Disability		Persons Below Poverty			Zero Vehicle Households		
			2000	2010	2014	2000	2010	2014	2000	2010	2014	2000	2014	2000	2010	2014	2000	2010	2014
Eastern Placer County																			
Kings Beach	201.07	201.07	3,774	3,171	3,111	433	187	264	187	108	280	21	189	698	266	536	28	155	39
Tahoe Vista	201.06	201.06	1,931	1,683	1,605	194	178	88	185	212	351	343	44	151	74	153	14	0	12
Carnelian Bay	201.05	201.05	1,694	1,047	1,183	62	107	67	231	299	379	253	74	117	34	101	16	0	0
Dollar Point	201.04	201.04	1,806	1,090	1,140	166	108	62	368	328	264	237	84	206	112	170	7	0	0
Tahoe City	222	201.03	1,058	802	1,080	105	69	113	91	282	172	94	51	5	85	56	0	0	6
Sunnyside	221	201.02	1,087	860	975	66	63	11	97	81	204	124	39	49	32	46	11	11	11
Homewood	223	201.01	808	701	738	74	63	39	122	158	177	108	82	67	67	72	0	38	30
Subtotal: Placer Tahoe Basin			*12,158*	*9,354*	*9,832*	*1,100*	*775*	*645*	*1,281*	*1,468*	*1,827*	*1,180*	*563*	*1,293*	*670*	*1,134*	*76*	*204*	*98*
Martis Valley	220.11	Note 1	--	1,354	1,829	--	222	373	--	329	325	--	96	--	211	80	--	11	4
Squaw Valley, Alpine Meadows, Serene Lakes	220.14			956	1,148		49	47		371	344		69		116	99		0	0
Subtotal: Eastern Placer County	--	--	--	*11,664*	*12,809*	--	*1,046*	*1,065*	--	*2,168*	*2,497*	--	*728*	--	*997*	*1,314*	--	*215*	*102*
Other Areas Served																			
Incline Village/Crystal Bay	--	--	9,952	8,606	8,582	952	637	573	1,828	2,119	2,634	1,300	737	709	384	1,036	56	66	64
Truckee	--	--	10,422	15,975	16,285	1,403	1,943	1,777	782	1,406	2,008	1,635	907	533	1,367	1,393	56	329	121
Tahoma/Rubicon Bay	320	305.03	1,158	801	676	110	22	76	136	115	166	167	110	88	84	60	19	33	25
Total Study Area			--	36,245	37,676	--	3,626	3,415	--	5,692	7,139	--	2,372	--	2,748	3,742	--	610	287

Note 1: 2000 Census Tract included portions of Colfax, making direct comparison of census tract data impossible.

SOURCE: US Census

- The population of the Washoe County area served by TART dropped by 14 percent between 2000 and 2010, and has been relatively unchanged between 2010 and 2014.

- Truckee has seen the greatest growth, with 2014 population 56 percent (5,863 persons) over 2000 levels.

- The El Dorado County census tract encompassing Tahoma and the Rubicon Bay area dropped 31 percent in population between 2000 and 2010, and another 11 percent between 2010 and 2014.

Transit Dependent Population

Nationwide, public transit ridership is drawn in large part from the potentially transit-dependent population consisting of elderly and youth, low-income, disabled, and households with no available vehicles. Estimates of current population by categories and households are available at the Census Tract level through the US Census Bureau.

Youths

Youths represent a transportation-dependent population, as those younger than 18 are often unable to drive and may not have a parent available to transport them. In particular, junior high school students who are independent enough to attend after-school activities but are unable to drive are a representative group. The population between 10 and 17 years of age (inclusive), by Census Tract, is presented in Table 1, while the proportion of total population in this category is shown in Table 2. As of 2014, there are an estimated 3,415 youth within the study area, comprising 9.1 percent of the total study area population. The highest youth population (1,777, accounting for 49 percent of total study area youths) exists in the Truckee area (Census Tracts 12.03 – 12.06). While the 2014 Truckee youth population has grown by 26 percent since 2000, it has decreased by 9 percent since 2010, contributing to the recent overall 6 percent decline in study area youth population.

Elderly

In 2014 the population aged 60 years of age and older comprises 7,139 persons, which is 18.9 percent of the total study area population. The senior population has risen from 5,496 in 2010. Within the Tahoe Basin portion of eastern Placer County, elderly residents have increased from 1,281 in 2000 to 1,827 in 2014. There are particularly high concentrations of seniors in the Incline Village/Crystal Bay area, where 31 percent of the residents are age 60 or above, along with the Carnelian Bay area (32 percent). In comparison, the proportion of elderly is relatively low in Kings Beach (9 percent) and Truckee (12 percent).

TABLE 2: TART Service Area Population Characteristics

Area	Youth (10-17)		Elderly (60+)		Persons with a Disability		Individuals Below Poverty		Zero Vehicle Households	
	2000	2014	2000	2014	2000	2014	2000	2014	2000	2014
Eastern Placer County										
Kings Beach	11.5%	8.5%	5.0%	9.0%	0.6%	6.1%	18.5%	17.2%	1.6%	2.2%
Tahoe Vista	10.0%	5.5%	9.6%	21.9%	17.7%	2.7%	7.8%	9.5%	1.6%	1.4%
Carnelian Bay	3.7%	5.7%	13.6%	32.0%	14.9%	6.3%	6.9%	8.5%	2.6%	0.0%
Dollar Point	9.2%	5.4%	20.4%	23.2%	13.1%	7.4%	11.4%	14.9%	1.1%	0.0%
Tahoe City	9.9%	10.5%	8.6%	15.9%	8.9%	4.7%	0.5%	5.2%	0.0%	1.0%
Sunnyside	6.1%	1.1%	8.9%	20.9%	11.4%	4.0%	4.5%	4.8%	2.6%	2.6%
Homewood	9.2%	5.3%	15.1%	24.0%	13.4%	11.1%	8.3%	9.8%	0.0%	8.3%
Subtotal: Placer Tahoe Basin	9.0%	6.6%	10.5%	18.6%	9.7%	5.7%	10.6%	11.5%	1.4%	1.9%
Martis Valley	--	20.4%	--	17.8%	--	5.2%	--	4.4%	--	0.4%
Squaw Valley, Alpine Meadows, Serene Lakes	--	4.1%	--	30.0%	--	6.0%	--	8.7%	--	0.0%
Subtotal: Eastern Placer County	--	*8.3%*	--	*19.5%*	--	*5.7%*	--	*10.3%*	--	*1.4%*
Other Areas Served										
Incline Village/Crystal Bay	9.6%	6.7%	18.4%	30.7%	13.1%	8.6%	7.1%	12.1%	1.3%	1.5%
Truckee	13.5%	10.9%	7.5%	12.3%	15.7%	5.6%	5.1%	8.6%	0.7%	1.4%
Tahoma/Rubicon Bay	9.5%	11.2%	11.7%	24.6%	14.4%	16.3%	7.6%	8.9%	3.7%	6.6%
Total Study Area	--	9.1%	--	18.9%	--	6.3%	--	9.9%	--	1.4%

SOURCE: US Census

Disability

Tables 1 and 2 also depict the study area population with disabilities by Census Tract for the year 2000 and 2014. Note that this information is not available for 2010. As of 2014, 2,372 individuals within the study area reported that they have a disability, equal to 6.3 percent of total population Truckee has the highest disabled populations (569 individuals). In the year 2000, the disabled population was much larger, consisting of 4,115 individuals (not including the Martis Valley/Squaw Valley/Alpine Meadows region).

Poverty

The US Census also counts the population living below the poverty level, defined by a number of factors including household income and the number of dependent children. Residents living below the poverty level comprise 9.9 percent of the study area population, compared to 16.4 statewide. The areas with the greatest number of residents below the poverty level include Kings Beach (536 individuals, or 17 percent of total), Truckee (1,393 residents or 8.6 percent of total) and Incline Village/Crystal Bay (1,036 individuals, or 12.1 percent of total). Overall, the number of persons below poverty in the Tahoe Basin portion of Placer County and the Tahoma area have declined somewhat since 2000, while those in Truckee and Incline Village/Crystal Bay have increased.

Zero-Vehicle Households

Finally, one of the strongest indicators of transit dependency is the number of households without a vehicle available. As of 2014, there are a total of 287 households in the study area without a vehicle (1.4 percent of all households). Truckee has the highest number of zero-vehicle households (121, or 1.4 percent of all households). Within eastern Placer County, zero vehicle households are largely in Kings Beach and in Homewood.

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Chapter 3

Existing Transit Services

Placer County's TART program is the primary public transit service in eastern Placer County. In addition, there are connecting public transit services as well as privately operated shuttle services.

TAHOE TRUCKEE AREA REGIONAL TRANSIT – Placer County Services

Overall Service Description

As of April 2016, Placer County TART fixed route services consist of the following:

- The **Mainline Route** consists of buses operating along the Lake Tahoe shoreline between Sugar Pine Point State Park (in El Dorado County) and the Hyatt Regency Resort in Incline Village (Washoe County, Nevada). Three buses are used to operate hourly service between Sugar Pine Point State Park and Crystal Bay, as well as half-hourly service between Crystal Bay and the Hyatt. In summer, the half-hourly service is expanded west to Tahoe City through the operation of a fourth bus. The overall span of service is from 6:00 AM to 7:25 PM, year-round, though the span of service on the West Shore portion between Tahoe City and Sugar Pine Point State Park is limited to 7:10 AM – 5:50 PM.

- The **Highway 89 Route** provides hourly service between Tahoe City and Truckee using two buses. Service is provided between 6:00 AM and 6:28 PM, year-round. All runs serve stops at the Alpine Transportation Center (Deer Park) and in Squaw Valley at the Resort and Square Creek, the Clock Tower, and the Village at Squaw Valley.

- The **Highway 89 Route** consists of two buses providing hourly service between Crystal Bay (Crystal Bay) and Truckee, via Northstar and the Truckee Airport. Service is operated from 6:00 AM to 6:28 PM. As of the beginning of the 2015/16 winter season, service will be provided year-round.

- Placer County also operates the **Night Service**, in both summer and winter. This free-to-the-rider service consists of two buses operating hourly between Squaw Valley and Crystal Bay (7:00 PM to 2:00 AM), one bus operating hourly between Tahoe City and Tahoma (6:30 PM to 1:30 AM), and one bus operating hourly between Crystal Bay and Northstar (6:30 PM and 12:30 AM). In previous years, this service was operated by a contractor and was branded as the Night Rider. The service is no longer separately branded, to provide a more cohesive overall TART service identity.

- The **North Tahoe Ski Shuttle** consists of two buses operating two runs in both the morning and the afternoon on peak ski days. These days consist of a two-week period

around the Christmas holidays, a one-week period around Presidents Day, a second one-week period around Spring Break, as well as other weekend days between December 18 and March 27. Schedules are designed to provide access from lodging properties along the North Shore, the West Shore and in Squaw Valley to the ski lifts at Squaw Valley, Alpine Meadows and Homewood. Also as part of this program, free TART vouchers are made available to lodging properties in Placer County for use by their guests.

Placer County also manages and funds a **Subsidized Taxi Service** to comply with the requirements of the Americans with Disabilities Act (ADA). This service is available to residents of the service area that are identified as being eligible through an application process (that requires a physician's authorization). Once in the program, the rider purchases vouchers, that are available at the Kings Beach Library, the Kings Beach Safeway, and through the mail. Ride requests are made directly with the taxi operator (Tahoe Blue Taxi), at least 24 hours in advance and up to 14 days in advance. The operator is paid at a rate of $3.84 per mile the passenger is transported.

Major Changes in TART over the Last Ten Years

There have been a number of changes to TART services over the last ten years:

- Implementation of electronic fare collection system – 2005
- First summer of half-hourly North Shore service (Tahoe City to Crystal Bay) – 2005
- Improvement of Truckee-Tahoe City route in non-winter seasons to hourly service – 2008
- Fare Increase from $1.25 (base fare) to $1.75 and elimination of transfers – 2009
- Initiation of Winter SR 267 Service – 2007
- Last year of summer daytime Tahoe City Trolley -- 2008
- Last year of summer daytime Tahoe Vista – Crystal Bay Trolley – 2009
- Construction of 12 new shelters – 2009 to 2015
- Initiation of Summer SR 267 Service between Northstar and Crystal Bay – 2010
- Opening of Tahoe City Transit Center – 2012
- Implementation of Nextbus real-time bus tracking capabilities – 2012
- Initiation of Skier Shuttle service – 2012 (Operated by private contractor in 2012/13, by TART starting winter of 2013/14
- Conversion of summer and winter evening service from Trolley service (Squaw Valley – Incline Village and Crystal Bay – Northstar) to contracted Night Rider bus service (Squaw Valley – Crystal Bay, Crystal Bay – Northstar, and Tahoma – Tahoe City) – 2013
- Initiation of SR 267 Summer Service – 2015
- Initiation of SR 267 Spring and Fall Service – 2016
- Placer County assumes direct operation of Night Rider Service – 2015
- Joint branding with Town of Truckee as Tahoe Truckee Area Regional Transit – 2015
- Begin replacement of existing bus fleet -- 2016

Fare Structure

TART's fares for daytime are as follows:

	Full Fare	Discounted Fare
Single Boarding	$1.75	$0.85
24-Hour Pass	$3.50	$1.75
10-Ride Pass	$14	$7
14-Day Pass	$30	$15
30-Day Pass	$53	$26.50

Discounted fares are provided to passengers age 60 and above, youth age 6 to 12, and Medicare card holders. Children age 5 and under ride for free with an adult. No transfers are provided; instead, passengers making transfers are encourage to purchase a 24-hour pass. Evening services (summer and winter) are provided free to the passenger.

Ridership

TART Ridership History by Route and Season

Table 3 presents the seasonal TART ridership on the individual routes from FY (Fiscal Year) 2010-11 to FY 2015-16 (year-to-date). As shown, during this period, ridership has generally declined:

- During the **fall** season, ridership has decreased most substantially on the North Shore and Nevada routes, dropping by 21.4 percent and 19.2 percent, respectively. In total, daytime fixed route ridership during the fall has decreased by 16.5 percent (or 9,970 passenger-trips).

- During the **spring** season, total daytime fixed route ridership fell by 17.7 percent between 2011 and 2015. The North Shore routes experienced the largest reduction in spring ridership, amounting to 6,739 (or 22.6 percent) less passenger-trips.

- The **summer** season also experienced a large net reduction in passenger-trips (14,645 or 21.5 percent less passenger-trips) between 2011 and 2015. While summer ridership on most of the daytime fixed routes (particularly Hwy 89, Nevada and North Shore) decreased, ridership on the Hwy 267 route increased by 2,232 passenger-trips, or 82.5 percent.

- Ridership within the **winter** season between 2011 and 2015 has stayed relatively steady, only decreasing by 3.4 percent, or 5,768 passenger-trips. While winter ridership did decrease by 10,358 passenger-trips (or 26.2 percent) on the Highway 267 routes, it grew by 3,554 passenger-trips (or 24.6 percent) on the West Shore routes and 2,299 passenger-trips (or 5.2 percent) on the Hwy 89 routes.

TABLE 3: TART Ridership History by Route and Season

	Fixed Route Daytime Routes						Trolley					
	West Shore	North Shore	Nevada	89	267	Subtotal	CA	NV	Subtotal	Skier Shuttle	Night Rider	TOTAL
Fall												
2011	6,616	29,753	8,810	15,130	0	60,309	0	0	0	0	0	60,309
2012	7,092	30,577	9,416	14,225	225	61,535	0	0	0	0	0	61,535
2013	6,344	28,783	9,095	16,606	0	60,828	0	0	0	0	0	60,828
2014	6,660	26,739	7,995	17,945	209	59,548	0	0	0	0	0	59,548
2015	5,921	23,371	7,120	13,927	0	50,339	0	0	0	0	0	50,339
5 Yr Change	-695	-6,382	-1,690	-1,203	0	-9,970	--	--	--	--	--	-9,970
5 Yr % Change	-10.5%	-21.4%	-19.2%	-8.0%	--	-16.5%	--	--	--	--	--	-16.5%
Winter												
2010-11	14,424	60,694	13,125	43,903	39,532	171,678	0	0	0	0	0	171,678
2011-12	13,340	50,748	16,058	37,594	40,488	158,228	0	0	0	0	0	158,228
2012-13	15,750	58,532	16,240	32,612	36,811	159,945	0	0	0	0	0	159,945
2013-14	14,103	60,881	13,942	42,966	33,792	165,684	0	0	0	1,218	0	166,902
2014-15	17,978	59,571	12,985	46,202	29,174	165,910	0	0	0	1,680	0	167,590
2015-16 YTD	11,330	37,519	8,918	24,735	26,299	108,801	0	0	0	1,362	20,912	131,075
5 Yr Change	3,554	-1,123	-140	2,299	-10,358	-5,768	--	--	--	--	--	-4,088
5 Yr % Change	24.6%	-1.9%	-1.1%	5.2%	-26.2%	-3.4%	--	--	--	--	--	-2.4%
Spring												
2011	7,250	29,802	8,508	15,367	27	60,954	29	14	43	0	0	60,997
2012	7,199	29,964	9,221	14,349	679	61,412	0	0	0	0	0	61,412
2013	7,169	29,230	9,072	11,919	521	57,911	0	0	0	0	0	57,911
2014	6,522	25,388	8,218	14,634	316	55,078	0	0	0	0	0	55,078
2015	6,705	23,063	7,336	13,036	0	50,140	0	0	0	0	0	50,140
5 Yr Change	-545	-6,739	-1,172	-2,331	-27	-10,814	--	--	--	--	--	-10,857
5 Yr % Change	-7.5%	-22.6%	-13.8%	-15.2%	-100.0%	-17.7%	--	--	--	--	--	-17.8%
Summer												
2011	8,848	31,461	9,818	15,369	2,706	68,202	7,740	1,937	9,677	0	0	77,879
2012	9,166	30,714	9,127	13,368	2,627	65,002	0	0	0	0	0	65,002
2013	7,835	29,868	8,958	11,920	3,323	61,904	0	0	0	0	0	61,904
2014	7,727	28,202	7,826	13,533	3,122	60,410	0	0	0	0	0	60,410
2015	7,801	23,137	7,372	10,309	4,938	53,557	0	0	0	0	0	53,557
5 Yr Change	-1,047	-8,324	-2,446	-5,060	2,232	-14,645	-7,740	-1,937	-9,677	0	0	-24,322
5 Yr % Change	-11.8%	-26.5%	-24.9%	-32.9%	82.5%	-21.5%	--	--	--	--	--	-31.2%
TOTAL (1)												
2010-11	37,138	151,710	40,261	89,769	42,265	361,143	7,769	1,951	9,720	0	0	370,863
2011-12	36,797	142,003	43,822	79,536	44,019	346,177	0	0	0	0	0	346,177
2012-13	37,098	146,413	43,365	73,057	40,655	340,588	0	0	0	0	0	340,588
2013-14	35,012	141,210	37,981	89,078	37,439	340,720	0	0	0	1,218	0	341,938
2014-15	38,405	129,142	34,813	83,474	34,112	319,946	0	0	0	1,680	0	321,626
2015-16 YTD	11,330	37,519	8,918	24,735	26,299	108,801	0	0	0	1,362	20,912	131,075
5 Yr Change	1,267	-22,568	-5,448	-6,295	-8,153	-41,197	-7,769	-1,951	-9,720	1,680	0	-49,237
5 Yr % Change	3.4%	-14.9%	-13.5%	-7.0%	-19.3%	-11.4%	--	--	--	--	--	-13.3%

Winter season -- December 14th to April 5th
Summer season -- July 1st to Sept 7th

- The change in **total annual** ridership is shown at the bottom of Table 3. As illustrated, ridership among the daytime fixed routes decreased by a total of 11.4 percent, or 41,197 passenger-trips, between 2011 and 2015. The West Shore routes have experienced a slight increase in ridership (3.4 percent or 1,267 passenger-trips). In contrast, the North Shore routes and Hwy 267 routes had the largest decreases in ridership, respectively 14.9 percent (or 22,568 passenger-trips) and 19.3 percent (or 8,153 passenger-trips).

As also shown in the table, Trolley service has not been in commission since the year 2011. The Skier Shuttle, which began in 2013, has grown from 1,218 trips in FY 2013-14, to 1,362 trips in FY 2015-16 (as of March 1st). As also shown, the Night Rider service generated 20,912 passenger-trips in FY 2015-16 to date (the first season of direct TART operation).

Recent TART Ridership

To gain a current picture of ridership trends, Table 4 presents the FY 14-15 TART ridership next to the FY 15-16 TART ridership between the dates of July and February. This can help to assess whether the decrease in 2015 ridership levels from 2011 ridership levels is due to an outside factor, such as low snowpack. As shown, the decline in ridership continued during the months of July through December. In January and February, however, FY 15-16 ridership has increased from the previous year. In total, between the months of June and February, FY 15-16 had 233,430 passenger-trips, whereas FY 14-15 had 246,319 passenger-trips (a 5 percent decline)

TABLE 4: TART FY 14/15 and FY 15/16 Ridership To-Date

	2014/15 YTD	2015/16 YTD	% Change
July	28,792	25,397	-12%
August	26,550	23,012	-13%
September	20,036	18,422	-8%
October	17,638	15,333	-13%
November	15,257	13,663	-10%
December	41,399	37,417	-10%
January	51,901	52,907	2%
February	44,746	47,279	6%
Total	**246,319**	**233,430**	-5%

TART Ridership by Month

Table 5 and Figure 1 present the monthly daytime ridership by route. This reflects the relative strength of the winter ridership (December through March), peaking for all routes in January.

The summer months of July and August are also relatively high, particularly on the routes along the Tahoe lakeshore. Note that 267 Route service was not operated in the spring and fall seasons in 2015.

TABLE 5: TART Monthly Ridership by Route

Calendar Year 2015

	Route				
	West Shore	North Shore	Nevada	89	267
January	5,950	18,398	3,777	14,172	9,131
February	4,780	15,518	3,429	12,628	7,988
March	3,596	13,306	3,530	10,444	6,169
April	2,123	7,898	2,444	5,477	536
May	2,211	7,474	2,344	4,196	0
June	2,778	9,214	3,007	4,461	0
July	3,829	10,912	3,542	4,830	2,284
August	3,299	10,042	3,158	4,314	2,199
September	2,354	8,225	2,621	4,767	455
October	1,827	7,130	2,267	4,109	0
November	1,579	6,349	1,972	3,763	0
December	3,055	12,354	2,928	8,347	6,050

SOURCE: TART

TART Ridership by Day of Week

Table 6 depicts the average TART ridership by day of week for each season on the various fixed route daytime routes. Ridership in the winter and summer was relatively even throughout the week, only fluctuating by about 20 percent. There was more daily variation in the shoulder seasons of spring and fall, which diverge by roughly 30 percent, depending on the day. As shown, average daily ridership was lowest on Sunday during all seasons (ranging from 450 passenger trips in the spring to 1,306 in the fall and winter). During the winter, Tuesday had the highest number of riders (1,575), followed by Monday and Wednesday. In the spring season, Wednesday had the highest number or riders (654), followed by Monday and Thursday. Summer ridership was highest on Thursday and Friday (with 909 and 936 riders, respectively). Fall's busiest ridership days were Monday and Wednesday, each with 666 passenger-trips.

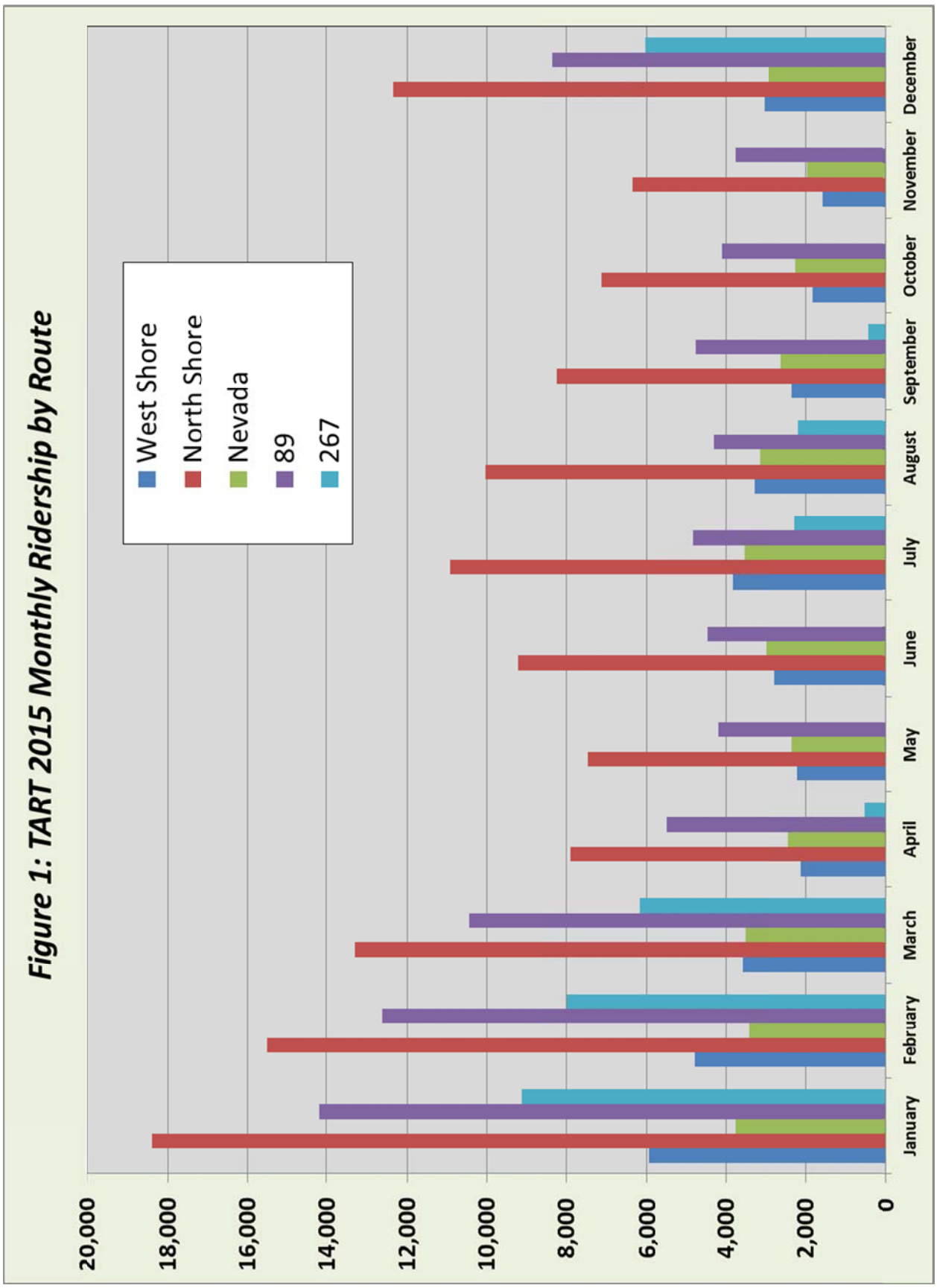
Figure 1: TART 2015 Monthly Ridership by Route
West Shore
North Shore
Nevada
89
267
20,000
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
January
February
March
April
May
June
July
August
September
October
November
December

TABLE 6: TART Ridership by Route by Day of Week by Season

Winter 2014/15 to Fall 2016

	Fixed Route Daytime Routes					
	West Shore	North Shore	Nevada	89	267	TOTAL
Winter						
Sunday	146	462	95	339	264	1,306
Monday	178	530	124	448	256	1,535
Tuesday	157	560	126	479	253	1,575
Wednesday	164	563	126	445	241	1,539
Thursday	156	531	112	409	256	1,463
Friday	171	532	126	403	268	1,499
Saturday	143	517	97	345	270	1,371
Spring						
Sunday	67	224	66	101	0	458
Monday	84	281	90	172	0	628
Tuesday	74	269	88	173	0	604
Wednesday	83	297	91	182	0	654
Thursday	89	277	86	168	0	620
Friday	77	287	99	142	0	605
Saturday	71	240	76	120	0	507
Summer						
Sunday	96	364	90	164	46	760
Monday	118	399	114	205	44	879
Tuesday	108	411	119	197	42	877
Wednesday	106	423	122	211	36	898
Thursday	116	417	124	211	41	909
Friday	125	442	119	202	47	936
Saturday	116	405	105	184	60	870
Fall						
Sunday	58	229	62	102	0	450
Monday	71	283	85	228	0	666
Tuesday	71	273	86	211	0	642
Wednesday	66	282	97	221	0	666
Thursday	68	272	82	213	0	635
Friday	77	319	89	177	0	662
Saturday	71	267	76	137	15	565

Winter season -- December 14th to April 5th
Summer season -- July 1st to Sept 7th

As also illustrated in the table, the West Shore, North Shore, Nevada, and Highway 89 routes had the highest ridership levels on weekdays. These high weekday trends suggest that the bulk of winter ridership is generated by local residents. In contrast, the Highway 267 route had the highest ridership on Saturdays.

TART Ridership by Hour by Route by Season

Daily boarding data was analysis for a two week period in peak winter (January), peak summer (August) and offseason (October) in order to identify the average boardings for each season by route over each hour of the day. The results are presented in Table 7 and Figure 2. As indicated, hourly passenger activity is substantially higher in winter than the other seasons. Ridership in winter is particularly concentrated in the commute periods (6:00 AM to 9:00 AM, and 4:00 PM to 6:00 PM), and in particular along the North Shore, SR 89 and SR 267 routes. All three of these routes have hourly boardings exceeding 53 passengers. While not all passengers may have been onboard at any one time, these figures compared with the maximum seating capacity of a TART bus (38 passengers) indicates that standees are a common occurrence on these three routes during bus morning and afternoon periods. It should be noted that a "tripper" bus (a second bus on the same schedule) is often operated along the North Shore and SR 89 Routes to address this issue. In comparison, the West Shore Route and Incline Village Route in winter, as well as all of the routes in summer and off-season, carry passenger loads within the seating capacity on all runs.

Resort Employee Program

A significant proportion of TART daytime riders are part of the "Resort Employee Ride" Program, by which major resort employers are charged directly for the rides by their employees. As shown in Table 8, over the most recent available 12-month period (March 2015 through February 2016), 103,333 passengers have boarded as part of this program. Comparing this most recent data with that of previous years, current ridership is down 10 percent in comparison with Fiscal Year 2013-14 ridership, and down 17 percent in comparison with Fiscal Year 2014-15 ridership.

Night Service Ridership by Route by Run by Season

Table 9 presents the TART Night Service total and average daily ridership by route, run and season during the winter and summer of 2015. As shown, during the winter, the Squaw Valley – Crystal Bay route had the highest ridership (with 13,213 total passenger-trips or an average of 118 daily passenger-trips), followed by the Crystal Bay – Squaw Valley route (with 12,930 total passenger-trips or an average of 115 daily passenger-trips). In contrast, the Crystal Bay – Northstar route experienced the lowest winter ridership, with 2,376 total passenger-trips or an average of 21 daily passenger-trips. The winter runs with the highest ridership included the Squaw Valley – Crystal Bay 7:00 PM and 9:00 PM runs (with respectively 2,521 and 2,506 passenger-trips), as well as the Crystal Bay – Squaw Valley 8:00 PM and 10:00 PM runs (with respectively 2,375 and 2,356 passenger-trips). The run with the highest average daily ridership

TABLE 7: Ridership by Route by Hour by Season

	WINTER						SUMMER						OFFSEASON				
Hr Start	West Shore	North Shore	Incline Village	Tahoe City-Truckee	N. Stateline-Truckee	TOTAL	West Shore	North Shore	Incline Village	Tahoe City-Truckee	N. Stateline-Truckee	TOTAL	West Shore	North Shore	Incline Village	Tahoe City-Truckee	TOTAL
6:00 AM	1.4	74.9	19.4	10.0	0.0	105.7	3.2	30.1	8.7	1.6	0.0	43.6	0.4	20.0	7.6	1.2	29.3
7:00 AM	24.7	76.7	7.1	37.0	56.1	201.7	18.5	29.6	7.4	11.3	4.1	70.9	9.9	30.2	6.5	14.4	61.1
8:00 AM	13.7	30.2	6.1	25.2	26.7	101.9	4.6	33.9	11.5	10.7	10.4	71.1	3.9	23.1	5.5	9.5	42.1
9:00 AM	13.8	20.6	6.9	18.9	22.0	82.3	6.0	25.4	5.6	10.6	5.2	52.8	3.0	12.2	4.8	6.7	26.7
10:00 AM	10.6	20.8	6.5	21.5	21.1	80.5	8.2	23.6	9.1	9.3	6.5	56.6	3.4	16.0	5.6	8.3	33.3
11:00 AM	7.3	22.5	5.3	17.4	16.4	69.0	6.1	21.1	6.3	12.5	5.9	51.9	4.1	11.1	4.7	8.7	28.6
12:00 PM	6.0	26.3	7.5	20.9	17.4	78.0	6.4	18.8	7.6	10.8	6.1	49.7	3.3	14.0	5.6	9.6	32.5
1:00 PM	7.4	26.7	7.0	21.5	18.2	80.8	12.7	16.6	7.8	12.5	6.7	56.3	4.9	19.3	5.2	12.1	41.5
2:00 PM	9.8	33.6	6.9	43.3	22.3	115.9	8.7	32.3	6.8	17.6	10.0	75.4	5.7	22.0	7.6	34.8	70.1
3:00 PM	12.7	29.4	10.8	50.8	33.5	137.2	13.6	32.4	13.1	19.4	6.4	85.0	7.0	23.5	9.1	18.6	58.1
4:00 PM	21.7	45.5	9.9	62.6	59.0	198.7	15.4	30.9	8.8	21.5	8.4	85.1	10.4	23.4	7.7	14.2	55.7
5:00 PM	22.6	63.1	10.8	17.3	53.5	167.3	10.5	28.3	9.1	6.1	6.5	60.4	4.4	21.1	5.2	6.3	37.1
6:00 PM	2.7	40.5	5.2	0.0	0.0	48.4	3.5	18.2	3.9	0.0	0.0	25.7	0.9	4.0	1.3	0.0	6.3
7:00 PM	0.0	0.0	1.6	0.0	0.0	1.6	0.0	0.0	1.6	0.3	0.0	1.9	0.0	0.0	0.0	0.0	0.0
TOTAL	154.4	510.7	111.0	346.3	346.1	1468.6	117.5	341.2	107.3	144.1	76.3	786.4	61.5	239.9	76.5	144.5	522.4

Source: TART GFI farebox data for 2 week periods January 11-24, 2016, July 27-August 9, 2015, and October 1-14, 2015

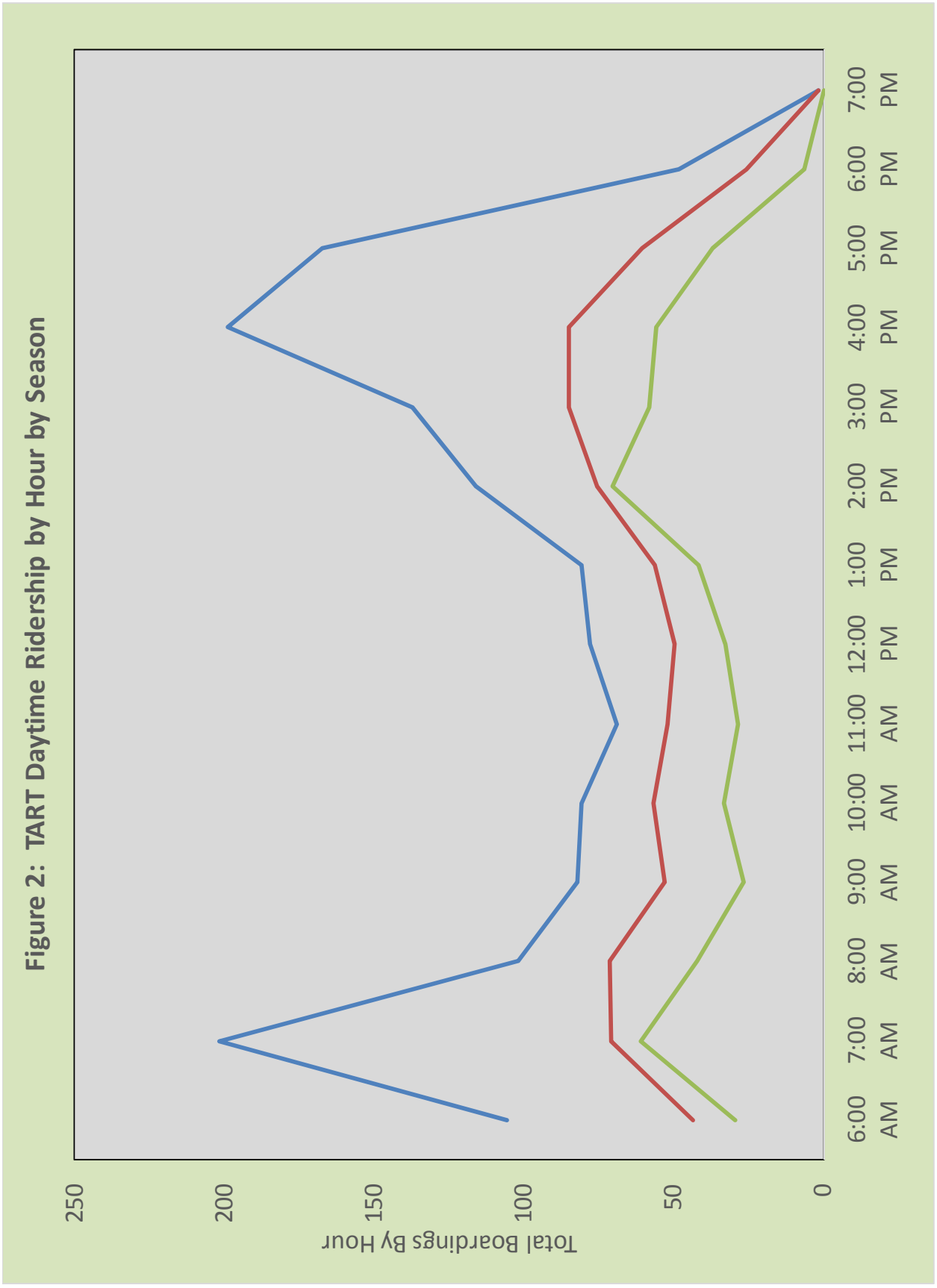
Figure 2: TART Daytime Ridership by Hour by Season
Total Boardings By Hour
250
200
150
100
50
0
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
1:00 PM
2:00 PM
3:00 PM
4:00 PM
5:00 PM
6:00 PM
7:00 PM

TABLE 8: TART Resort Employee Ride Program Ridership

March 2015 Through February 2016

	BOARDINGS BY EMPLOYER					
Month	Squaw Valley Ski Corp	Village at Squaw Valley	Resort at Squaw Creek	Northstar California	Homewood Mtn Resort	TOTAL
July	1,959	752	345	365	698	4,119
August	1,929	685	214	188	632	3,648
September	1,349	531	210	67	275	2,432
October	1,129	416	209	69	116	1,939
November	1,567	515	99	40	39	2,260
December	6,875	749	171	5,107	990	13,892
January	11,294	753	211	10,149	2,395	24,802
February	7,224	596	126	9,322	2,263	19,531
March	12,557	839	251	5,597	475	19,719
April	3,326	481	232	1,001	128	5,168
May	1,641	298	174	338	107	2,558
June	1,683	456	233	312	581	3,265
TOTAL	**52,533**	**7,071**	**2,475**	**32,555**	**8,699**	**103,333**
Historical Data						
FY 2013-14	*55,739*	*13,553*	*3,068*	*32,564*	*9,629*	*114,553*
FY 2014-15	*77,100*	*9,486*	*2,744*	*26,838*	*8,178*	*124,346*

SOURCE: TART

was the Squaw Valley – Crystal Bay 7:00 PM run, with 23 passengers. Several of the Tahoe City – Tahoma, Tahoma – Tahoe City, and Crystal Bay – Northstar runs had an average of only 3-5 passengers.

Summer ridership on the Night Service was significantly lower than in the winter. Similar to the winter, summer Night Service ridership was highest on the Squaw Valley – Crystal Bay route, with 5,780 total passenger-trips or 85 daily passenger-trips. The Crystal Bay – Squaw Valley route also had relatively high summer ridership, with 5,283 total passenger-trips or 78 daily passenger-trips. The Crystal Bay – Northstar route had the lowest summer ridership, with 1,178 total passenger-trips or 17 daily passenger-trips. The summer runs with the highest ridership included the Squaw Valley – Crystal Bay 7:00 PM run (with 1,014 passenger-trips), as well as the Crystal Bay – Squaw Valley 10:00 PM run (with 1,053 passenger-trips). Both of these runs also had the highest average daily ridership, each providing an average of 15 passenger-trips per day. During the hours of 12:00 AM and 1:00 AM, the Tahoma – Tahoe City route had the lowest average daily ridership, with only 1 rider per run. Furthermore, several of the Crystal Bay – Northstar runs had an average of only 2 daily passenger-trips.

ADA Ridership by Month Hour of Day and Day of Week

Fiscal Year 2014-15 ADA trip logs indicate that a total of 428 one-way passenger trips were provided. Of these, 28 required the use of a wheelchair accessible vehicle (operated directly by

TABLE 9: Night Rider Ridership by Route by Run by Season

	Start Time	Ridership	Start Time	Ridership	Start Time	Ridership	Start Time	Ridership	Start Time	Ridership	Start Time	Ridership	Start Time	Ridership	Total Psgrs	
Total Season Ridership																
Winter - 12/15/14 to 4/5/15																
SV - Crystal Bay	7:00 PM	2,521	8:00 PM	1,397	9:00 PM	2,506	10:00 PM	1,963	11:00 PM	1,956	12:00 AM	1,283	1:00 AM	1,587	13,213	
Crystal Bay - SV	7:00 PM	1,815	8:00 PM	2,375	9:00 PM	2,029	10:00 PM	2,356	11:00 PM	1,540	12:00 AM	1,446	1:00 AM	1,369	12,930	
TC - Tahoma	6:30 PM	1,102	7:30 PM	341	8:30 PM	692	9:30 PM	838	10:30 PM	714	11:30 PM	541	12:30 AM	612	4,840	
Tahoma - TC	7:00 PM	383	8:00 PM	567	9:00 PM	485	10:00 PM	604	11:00 PM	498	12:00 AM	413	1:00 AM	653	3,603	
NSTR - Crystal Bay	6:30 PM	950	7:30 PM	984	8:30 PM	1,113	9:30 PM	1,298	10:30 PM	879	11:30 PM	355	-	0	5,579	
Crystal Bay - NSTR	7:00 PM	316	8:00 PM	449	9:00 PM	395	10:00 PM	421	11:00 PM	386	12:00 AM	409	-	0	2,376	
Summer - 7/1/15 to 9/6/15																
Squaw Valley - Crystal Bay	7:00 PM	1,014	8:00 PM	757	9:00 PM	926	10:00 PM	903	11:00 PM	896	12:00 AM	749	1:00 AM	535	5,780	
Crystal Bay - Squaw Valley	7:00 PM	671	8:00 PM	966	9:00 PM	829	10:00 PM	1,053	11:00 PM	568	12:00 AM	741	1:00 AM	455	5,283	
Tahoe City - Tahoma	6:30 PM	275	7:30 PM	226	8:30 PM	321	9:30 PM	287	10:30 PM	308	11:30 PM	238	12:30 AM	180	1,835	
Tahoma - Tahoe City	7:00 PM	250	8:00 PM	265	9:00 PM	239	10:00 PM	444	11:00 PM	182	12:00 AM	98	1:00 AM	51	1,529	
Northstar - Crystal Bay	6:30 PM	206	7:30 PM	252	8:30 PM	468	9:30 PM	384	10:30 PM	270	11:30 PM	133	-	0	1,713	
Crystal Bay - Northstar	7:00 PM	127	8:00 PM	145	9:00 PM	258	10:00 PM	146	11:00 PM	205	12:00 AM	297	-	0	1,178	
Average Daily Ridership																Ridership per Vehicle-Hour
Winter - 12/15/14 to 4/5/15																
SV - Crystal Bay	7:00 PM	23	8:00 PM	12	9:00 PM	22	10:00 PM	18	11:00 PM	17	12:00 AM	11	1:00 AM	14	118	16.9
Crystal Bay - SV	7:00 PM	16	8:00 PM	21	9:00 PM	18	10:00 PM	21	11:00 PM	14	12:00 AM	13	1:00 AM	12	115	16.5
TC - Tahoma	6:30 PM	10	7:30 PM	3	8:30 PM	6	9:30 PM	7	10:30 PM	6	11:30 PM	5	12:30 AM	5	43	12.3
Tahoma - TC	7:00 PM	3	8:00 PM	5	9:00 PM	4	10:00 PM	5	11:00 PM	4	12:00 AM	4	1:00 AM	6	32	9.2
NSTR - Crystal Bay	6:30 PM	8	7:30 PM	9	8:30 PM	10	9:30 PM	12	10:30 PM	8	11:30 PM	3	-		50	14.2
Crystal Bay - NSTR	7:00 PM	3	8:00 PM	4	9:00 PM	4	10:00 PM	4	11:00 PM	3	12:00 AM	4	-		21	6.1
Summer - 7/1/15 to 9/6/15																
Squaw Valley - Crystal Bay	7:00 PM	15	8:00 PM	11	9:00 PM	14	10:00 PM	13	11:00 PM	13	12:00 AM	11	1:00 AM	8	85	12.1
Crystal Bay - Squaw Valley	7:00 PM	10	8:00 PM	14	9:00 PM	12	10:00 PM	15	11:00 PM	8	12:00 AM	11	1:00 AM	7	78	11.1
Tahoe City - Tahoma	6:30 PM	4	7:30 PM	3	8:30 PM	5	9:30 PM	4	10:30 PM	5	11:30 PM	4	12:30 AM	3	27	7.7
Tahoma - Tahoe City	7:00 PM	4	8:00 PM	4	9:00 PM	4	10:00 PM	7	11:00 PM	3	12:00 AM	1	1:00 AM	1	22	6.4
Northstar - Crystal Bay	6:30 PM	3	7:30 PM	4	8:30 PM	7	9:30 PM	6	10:30 PM	4	11:30 PM	2	-		25	7.2
Crystal Bay - Northstar	7:00 PM	2	8:00 PM	2	9:00 PM	4	10:00 PM	2	11:00 PM	3	12:00 AM	4	-		17	4.9

TART staff), while 400 were provided by the non-wheelchair accessible taxi service. As shown in Table 10, these trips occurred relatively uniformly over the year, with a high of 42 trips in February and a low of 24 in May. The ridership by day of week was highest on Thursday (an average of 2.0) and lowest on Saturday (an average of 0.3). While the service is available around the clock, all trips were provided between 6:00 AM and 6:00 PM, with the majority (65 percent) occurring between 11:00 AM and 4:00 PM. Thursday, August 14th was the busiest day of the FY 2014-15 year, with 8 ADA rides.

TABLE 10: Summary of ADA Ridership by Month, Day and Hour

Fiscal Year 2014/15

By Month

	Wheelchair	Non-Wheelchair	Total #	Total %
Jul-14	2	30	32	7%
Aug-14	0	41	41	10%
Sep-14	2	23	25	6%
Oct-14	0	39	39	9%
Nov-14	0	39	39	9%
Dec-14	2	54	56	13%
Jan-15	4	35	39	9%
Feb-15	4	38	42	10%
Mar-15	8	21	29	7%
Apr-15	4	23	27	6%
May-15	2	22	24	6%
Jun-15	0	35	35	8%
Total	28	400	428	

By Hour

	#	%
6:00 AM	1	0%
7:00 AM	4	1%
8:00 AM	14	3%
9:00 AM	21	5%
10:00 AM	35	8%
11:00 AM	53	12%
12:00 PM	52	12%
1:00 PM	61	14%
2:00 PM	64	15%
3:00 PM	51	12%
4:00 PM	39	9%
5:00 PM	16	4%
6:00 PM	15	4%

Average By Day of Week

Sunday	0.4
Monday	1.7
Tuesday	1.4
Wednesday	1.4
Thursday	2.0
Friday	1.1
Saturday	0.3
Overall	1.2

Busiest Single Day

Thursday, August 14 -- 8 Rides

ADA Origin-Destination Summary

The Fiscal Year 2014-15 passenger logs were also analyzed to identify one-way trip origin-destination patterns, as shown in in Table 11. As shown, the most prevalent trip was from Kings Beach to Truckee, accounting for 65 total trips, or 15.22 percent of total FY 14-15 ADA trips. Other common trips (with 30 or more annual trips) were from Truckee to Kings Beach (59 trips or 13.82 percent), Tahoe City to Tahoma (32 trips or 7.49 percent), and Tahoma to Tahoe City (30 trips or 7.03 percent). As shown, Truckee was the most common origin and destination, as the starting point for 138 trips, and the end point for 128 trips. Overall, 59 percent of all trips had one or both trip ends in Truckee. Kings Beach was the second most common origin and destination, with 86 trips originating in Kings Beach, and 98 trips ending in Kings beach. Tahoma and Tahoe City were other popular origins and destinations.

Onboard Passenger Surveys

Surveys were conducted on all of the TART fixed routes (including the Night Rider service) to better understand passenger activity, ridership patterns, and overall perception of the system. The surveys were distributed onboard between the dates of March 14th and March 24th, 2016. A total of 264 surveys were completed by TART passengers. Detailed response data is presented in Appendix A. Key findings of this survey are as follows:

- 70 percent of riders were travelling roundtrip.
- In assessing the mode of travel to the bus, 78 percent of respondents walked from their origin, followed by 8 percent who transferred from another bus.
- 76 percent of respondents were walking to their destination, followed by the 11 percent of respondents who were transferring to another bus.
- Most respondents were traveling for work (52 percent), recreational/social purposes (31 percent) and personal business (7 percent).
- Out of the respondents, 46 percent are full-time residents, 39 percent are seasonal residents, and 11 percent are overnight visitors.
- Among the permanent residents, the majority (77 percent) live in Placer County, followed by Truckee (12 percent) and Incline Village/Crystal Bay (8 percent).
- When asked why they used TART services, the majority (51.79 percent) have no car available. Other common reasons for using TART include convenience (16 percent), inability to drive (14 percent) and money saving (10 percent).

TABLE 11: SUMMARY OF TART ADA TRIPS - July 2014 through June 2015

One-Way Passenger Trips

	Tahoma	Tahoe City	Tahoe Vista	Carnelian Bay	Dollar Hill	Kings Beach	Incline Village	Squaw Valley	Northstar	Truckee	TOTAL
Tahoma		30	3			1	1	8		25	68
Tahoe City	32					9	20	3		2	66
Tahoe Vista	3										3
Carnelian Bay						4					4
Dollar Hill										1	1
Kings Beach	1	13		4	1	11	3			65	98
Incline Village	1	18				2		1			22
Squaw Valley	5	1					1			29	36
Northstar										1	1
Truckee	23	4				59		26	1	15	128
TOTAL	65	66	3	4	1	86	25	38	1	138	427
Total Both Trip Ends	0	0	0	0	0	11	0	0	0	15	

Percent of All Trips

Tahoma		7.0%	0.7%			0.2%	0.2%	1.9%		5.9%	15.9%
Tahoe City	7.5%					2.1%	4.7%	0.7%		0.5%	15.5%
Tahoe Vista	0.7%										0.7%
Carnelian Bay						0.9%					0.9%
Dollar Hill										0.2%	0.2%
Kings Beach	0.2%	3.0%		0.9%	0.2%	2.6%	0.7%			15.2%	23.0%
Incline Village	0.2%	4.2%				0.5%		0.2%			5.2%
Squaw Valley	1.2%	0.2%					0.2%			6.8%	8.4%
Northstar										0.2%	0.2%
Truckee	5.4%	0.9%				13.8%		6.1%	0.2%	3.5%	30.0%
TOTAL	15.2%	15.5%	0.7%	0.9%	0.2%	20.1%	5.9%	8.9%	0.2%	32.3%	100.0%
Total Both Trip Ends	0.0%	0.0%	0.0%	0.0%	0.0%	2.6%	0.0%	0.0%	0.0%	3.5%	

- 47 percent of the respondents ride TART daily, 26 percent ride 2-4 days per week, and 11 percent were riding for their first time.

- When asked how long they've been using TART, the most common answer (for 39 percent of the respondents) was less than 6 months. 26 percent of respondents have been riding TART for more than 3 years, and another 17 percent have been riding for 1-3 years.

- A car was not available for the trip for 76 percent of respondents.

- Had it not been for TART, the majority (47 percent) or respondents would have gotten a ride to complete the trip. Other common transportation alternatives included taking a taxi and walking. 12 percent of the respondents would not have made the trip without available TART services.

- 51 percent of the respondents are ages 25-61, and 40 percent of respondents are ages 19-24.

- More respondents were male than female (61 versus 39 percent).

- Almost half (41 percent) of respondents use the TART website as their primary source of transit information, followed by printed guides/schedules (19 percent) and bus drivers (16 percent).

Passengers were asked to rank transit service characteristics of TART on a scale of "Very Poor" to "Excellent." The results are shown in Figure 3. In general, the majority of passengers have a positive opinion of TART, with 71 percent indicating an overall experience that is either "excellent" or "good". By category, "Driver Courtesy" received the highest rating, with 85 percent of the riders rating it at "Good" to "Excellent." The "Service Frequency," "On Time" and "Hours of Service" received the lowest ratings. In particular, 20 percent of respondents indicated "poor" or "very poor" regarding service frequency, along with 18 percent for hours of service and 17 percent for on-time performance.

Passengers were asked to identify the most the importance of improving various aspects of TART on a scale from "Not Important" to "Very Important." The results are shown in Figure 4. As illustrated, the addition of evening service in the Fall/Spring, as well as more frequent service, were the two areas identified as most pertinent for improvement to the TART system. In contrast, respondents were not as concerned about improving the TART system through eliminating fares, improving bus stops, or adding Wi-Fi service to the buses.

Riders were also asked to respond to the question: *What single most important improvement would you suggest for bus service?* A summary of these responses, shown in Table 12, indicates that the most common requests (21.2 percent) was for more frequent service,

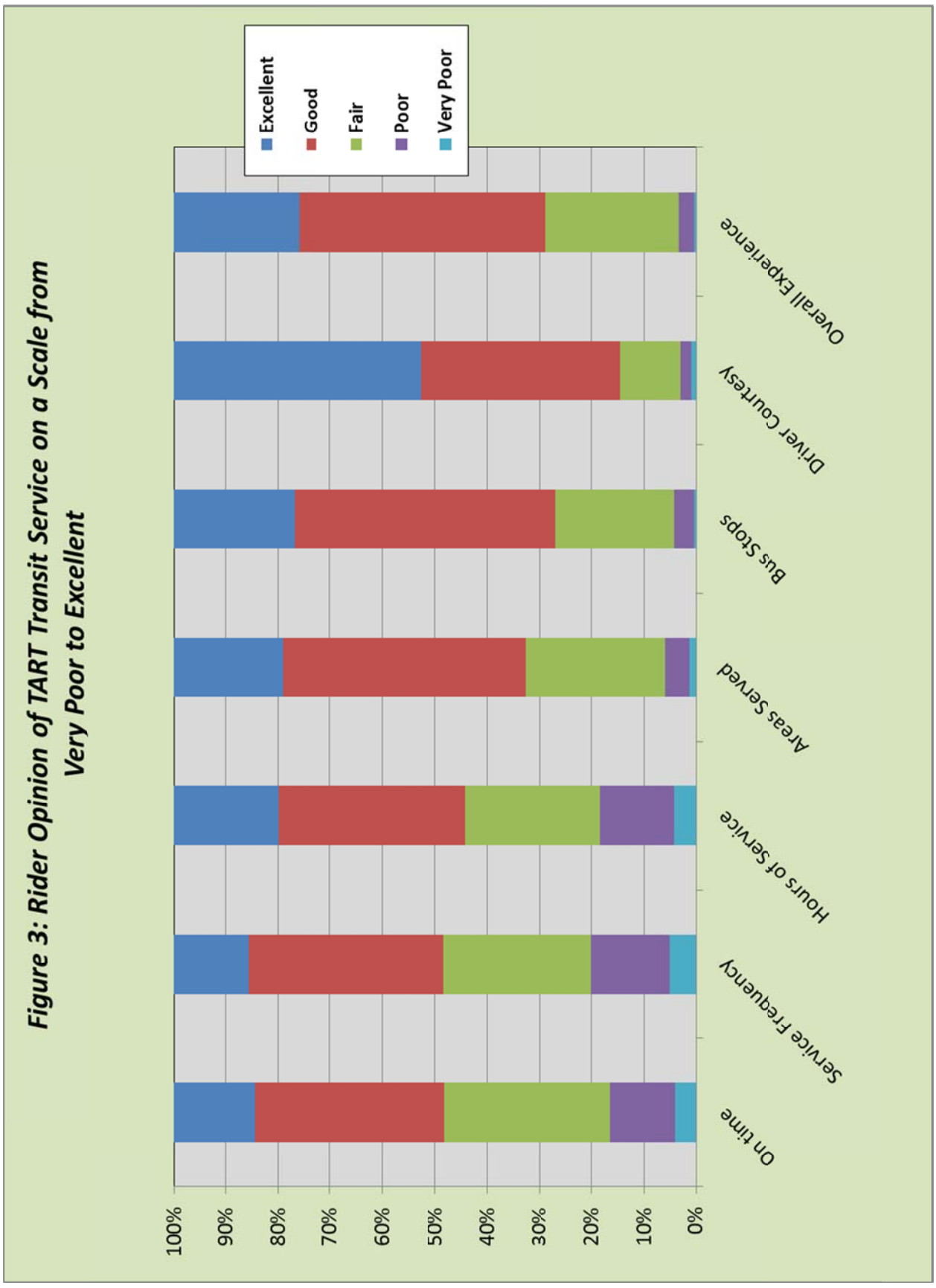

Figure 3: Rider Opinion of TART Transit Service on a Scale from Very Poor to Excellent

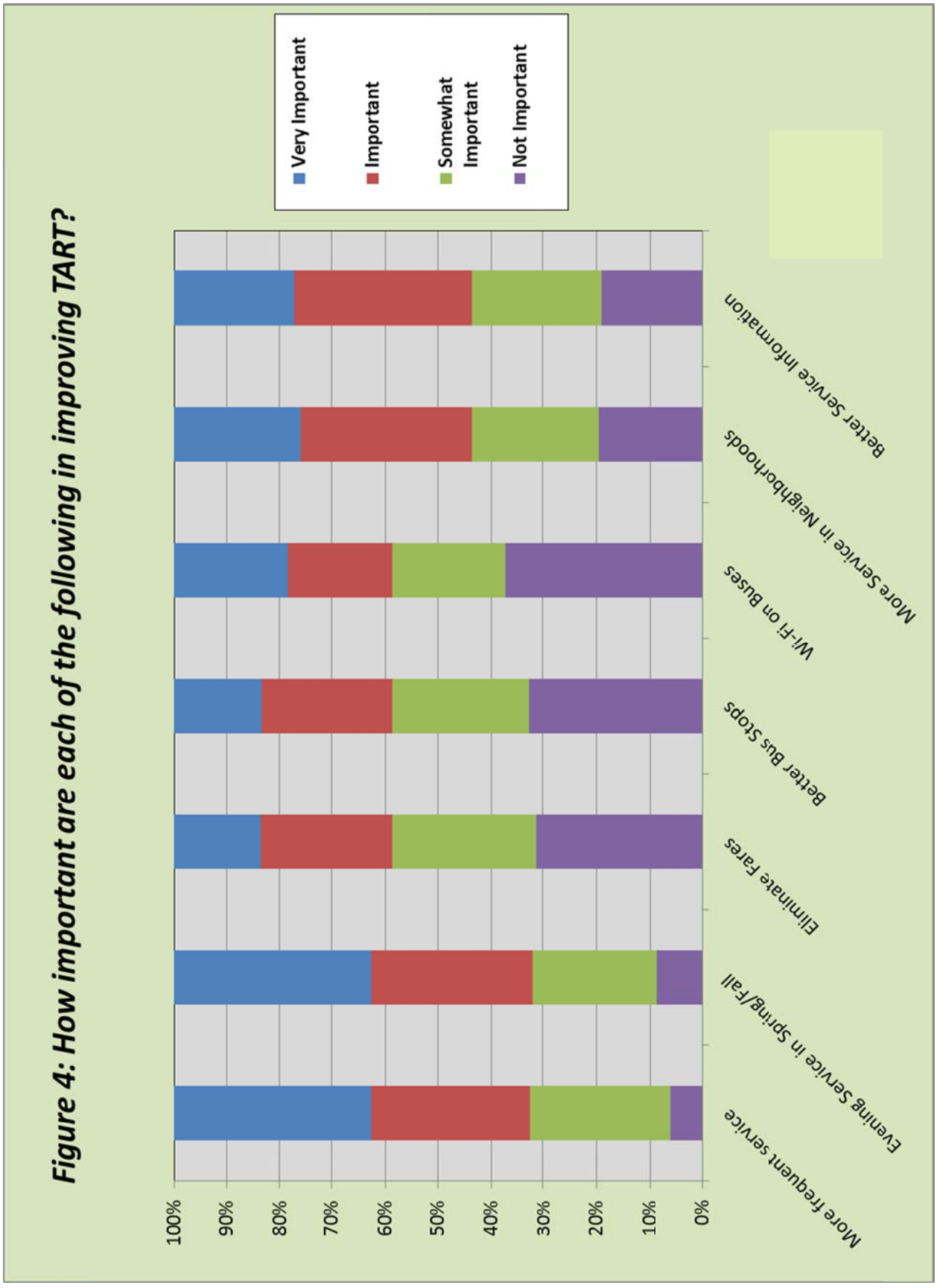
Figure 4: How important are each of the following in improving TART?
Very Important
Important
Somewhat Important
Not Important
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
More frequent service
Evening Service in Spring/Fall
Eliminate Fares
Better Bus Stops
Wi-Fi on Buses
More Service in Neighborhoods
Better Service Information

TABLE 12: TART Winter 2016 Onboard Survey Passenger Comments

Comment/Request	# Respondents	% Respondents
More frequent service	36	21.2%
Improve on-time performance	34	20.0%
Year-round service on Night Rider routes	16	9.4%
More and/or later evening buses	10	5.9%
Nightrider service in Truckee	6	3.5%
Travel through neighborhoods	6	3.5%
Earlier AM buses	5	2.9%
Improve real-time information	5	2.9%
Improve bus stops	5	2.9%
Provide on-board wifi service	4	2.4%
Additional buses	4	2.4%
Provide Night Rider service to Incline Village	4	2.4%
Improve driver attitude	4	2.4%
Connectivity to South Lake Tahoe	4	2.4%
Improve cleanliness	3	1.8%
Eliminate problems with buses not stopping	3	1.8%
Better drivers	2	1.2%
Connectivity to Reno	2	1.2%
Provide 24-hour service	2	1.2%
Provide direct service between Tahoe City and Northstar	2	1.2%
Provide more stops	2	1.2%
Free fares	2	1.2%
Earlier AM bus to Truckee	1	0.6%
Run 267 routes all night long	1	0.6%
Provide change for fares	1	0.6%
Provide ski racks	1	0.6%
Provide transit information at hotels and resorts	1	0.6%
Free transfers	1	0.6%
Provide 24-hour customer service	1	0.6%
Service to Tahoe Donner	1	0.6%
Improve schedule clarity on website	1	0.6%
Total	**170**	**100.0%**

followed by improving on-time performance (20.0 percent) and year-round Night Rider service (9.4 percent).

Finally, a cross-tabulation of the survey data was conducted to identify the individual passenger trip origin-destination pairs, as shown in Table 13. Popular trip patterns (20 or more responses) were for travel between Kings Beach and Northstar, Tahoe City and Squaw Valley, as well as for trips within Kings Beach. Detailed trip patterns are as follows:

TABLE 13: Passenger Origin/Destination -- TART 2016 Fixed Route Winter Survey

Trip Origin	Trip Destination: Alpine Meadows	Carnelian Bay	Crystal Bay	Homewood	Incline Village	Kings Beach	Northstar	Squaw Valley	Sunnyside	Tahoe City	Tahoe Vista	Tahoma	Truckee	No Answer
Number of Total Responses														
Alpine Meadows												2	1	
Carnelian Bay					1		2			1				
Crystal Bay			1	1		4	4	1	1	1		1	2	
Homewood	1					2		1		1				
Incline Village			1		2		3	2		1		1		
Kings Beach	1		5		2	10	16	12	1	5		1	3	
Northstar		1	1	1	2	6	3		1	1	2		3	
Squaw Valley	3		2		6	2		1	1	14		1	3	
Sunnyside	1		1	2	1			8		3				
Tahoe City	3	2	5	2		5	3	10	2	9		1		2
Tahoe Vista		1				2	4	2			2		2	
Tahoma						1	2	1		4		1	1	
Truckee				3		4	9	8				1	5	
Other (please specify)							1							
Percent of All Responses														
Alpine Meadows												0.8%	0.4%	
Carnelian Bay					0.4%		0.8%			0.4%				
Crystal Bay			0.4%	0.4%		1.5%	1.5%	0.4%	0.4%	0.4%		0.4%	0.8%	
Homewood	0.4%					0.8%		0.4%		0.4%				
Incline Village			0.4%		0.8%		1.1%	0.8%		0.4%		0.4%		
Kings Beach	0.4%		1.9%		0.8%	3.8%	6.1%	4.6%	0.4%	1.9%		0.4%	1.1%	
Northstar		0.4%	0.4%	0.4%	0.8%	2.3%	1.1%		0.4%	0.4%	0.8%		1.1%	
Squaw Valley	1.1%		0.8%		2.3%	0.8%		0.4%	0.4%	5.3%		0.4%	1.1%	
Sunnyside	0.4%		0.4%	0.8%	0.4%			3.1%		1.1%				
Tahoe City	1.1%	0.8%	1.9%	0.8%		1.9%	1.1%	3.8%	0.8%	3.4%		0.4%		0.8%
Tahoe Vista		0.4%				0.8%	1.5%	0.8%			0.8%		0.8%	
Tahoma						0.4%	0.8%	0.4%		1.5%		0.4%	0.4%	
Truckee				1.1%		1.5%	3.4%	3.1%				0.4%	1.9%	
Other (please specify)							0.4%							

- Of all trips passing through the Tahoe City area (excluding trips to/from Tahoe City), 21 are between the West Shore and the SR 89 Route, 16 are between the North Shore and the Squaw Valley/Alpine Meadows area, and 15 are between the West Shore and the North Shore. Overall, this indicates little need to reconfigure the routes from the current arrangement by which the West Shore and North Shore have through service, while the SR 89 Route terminates in Tahoe City.

- For trips on the SR 89 Route, 5 percent are within Truckee, 24 percent are between Truckee and Squaw Valley/Alpine Meadows, 8 percent are within Squaw Valley/Alpine Meadows, 55 percent are between Squaw Valley/Alpine Meadows and Tahoe City (or

beyond), and 8 percent are between Truckee and Tahoe City (or beyond). Overall the service between Tahoe City and Squaw Valley accommodates 63 percent of all passenger-trips on this route.

- For the SR 267 Route, 3 percent of passenger-trips are within Truckee, 16 percent between Truckee and Northstar, 4 percent within Northstar, 65 percent between Northstar and Kings Beach/Crystal Bay (or beyond) and 12 percent are between Truckee and Crystal Bay (or beyond). This indicates that 69 percent of passenger-trips occur on the segment between Northstar and Crystal Bay.

Comparison with 2003 TART Fixed Route Onboard Survey

A previous TART on-board survey was conducted in March of 2003 as part of the 2004 TART Systems Plan Update. Each run on every route was surveyed as part of this input process. A comparison of the two surveys indicates the following key findings:

- In both surveys, the greatest proportions of respondents were Placer County residents, with 57 percent Placer residents in 2003 and 77 percent Placer residents in 2016.

- A total of 77 percent of respondents walked to the bus in both of the surveys.

- In 2003, 55 percent of the respondents rode TART daily, and in 2016, 47 percent rode TART daily.

- The proportion of passenger traveling for work dropped from 71 percent in the 2003 survey to 52 percent in the 2016 survey, while recreational/social travel grew from 15 percent to 31 percent.

- 88 percent of the 2003 respondents had used TART for more than 6 months, whereas only 51 percent of 2016 respondents had used TART for more than 6 months.

- In 2016, 13 percent of respondents were area visitors, exceeding the 5 percent of visiting respondents in 2003.

- In 2003, 80 percent of the respondents were utilizing TART because they did not own a vehicle, whereas only 52 percent of the 2016 respondents did now own a vehicle.

- A lesser proportion of respondents were ages 25-61 in 2003 (44 percent) than in 2016 (51 percent).

- In both surveys, the proportion of male respondents slightly outweighed the female respondents.

Capital Inventory

Vehicle Fleet

Table 14 presents Placer County TART's current bus fleet. It consists of a total of 17 buses, of which 14 are powered by compressed natural gas and the remaining 3 by diesel fuel. The majority of the buses are 35- to 40-feet in length, with seating capacity of 30 to 38 passengers. All buses are wheelchair accessible, and are outfitted with bike racks in the non-winter months. Of note, the fleet was recently improved with the addition of four new Gillig buses, branded in the new TART logo.

TABLE 14: TART Bus Fleet Inventory

As of 3/9/16

Bus #	Make	Mileage	Fuel	Year	Length	Capacity	Title	Replacement Date
0010	Gillig	813,578	Diesel	2000	35	35	Placer County	2016
0120	Orion V	613,150	CNG	2001	35	35	Placer County	2017
0424	Orion V	541,414	CNG	2004	35	35	Placer County	2017
0425	Orion V	514,521	CNG	2004	35	35	Placer County	2018
0426	Orion V	528,565	CNG	2004	35	35	Placer County	2018
0627	Orion V	493,116	CNG	2006	40	38	Placer/TTD	2020
0628	Orion V	447,171	CNG	2006	40	38	Placer/TTD	2020
0629	Orion V	428,948	CNG	2006	40	38	Placer/TTD	2020
0630	Orion V	451,896	CNG	2006	40	38	Placer/TTD	2020
1516	Gillig	4,618	CNG	2015	40	35	Placer County	2028
1517	Gillig	10,608	CNG	2015	40	35	Placer County	2028
1518	Gillig	10,272	Diesel	2015	40	35	Placer County	2028
1519	Gillig	9,133	Diesel	2015	40	35	Placer County	2028
201	Ford F550	136,500	CNG	2012	30	30	TTD LEASE	2022
3314	NABI	242,191	CNG	2009	40	35	TTD LEASE	2022
3315	NABI	265,576	CNG	2009	40	35	TTD LEASE	2022
3316	NABI	210,576	CNG	2009	40	35	TTD LEASE	2022

Note: All buses are wheelchair accessible, with 2 wheelchair positions

Bus Stops

The Placer County TART program serves a total of 178 individual bus stops:
135 on the Mainline Route, 24 on the SR 89 Route excluding the stop on the Mainline Route (including 10 in Truckee) and 19 on the SR 267 Route excluding those on the other routes (of which 10 are in Truckee or unincorporated Nevada County). As shown in Table 15, 32 of these stops have transit shelters (including 4 in Truckee and 4 in Washoe County).

The key passenger facility is the Tahoe City Transit Center in Tahoe City. This facility provides a total of six bus bays, interior and exterior waiting areas, park-and-ride parking, and bicycle lockers.

TABLE 15: TART Shelter Locations

Route Segment / Location	Roadway	Location
Eastbound -- Tahoma to Incline Village		
Tahoma Post Office/Lodge	89	Tahoma
Hw. 89 @ Westshore Café	89	Homewood
Hw. 89 @ Sunnyside	89	Sunny Side
Tahoe City Y	28	Tahoe City
Tahoe City / Light House Center Pier	28	Tahoe City
Hw. 28 @ Dollar Hill Dr./ @ Dollar Hill	28	Dollar Hll
Patton Landing/ Carnelian Bay	28	Carnelian Bay
The Old Post Office Restaurant	28	Carnelian Bay
Tahoe Vista Recreational Area	28	Tahoe Vista
North Tahoe Conference Center	28	Kings Beach
Crystal Bay / State Line	28	Crystal Bay
Westbound -- Incline Village To Tahoma		
Hw. 28 After Village Blvd	28	Incline Village
Hw. 28 Christmas Tree Village Shopping Center	28	Incline Village
Hw. 28 After Northwood Blvd	28	Incline Village
Crystal Bay / State Line	28	Crystal Bay
Hw 28 At Chevron Between Bear And Deer (New 11/2015)	28	Kings Beach
Safeway Bus Shelter	28	Kings Beach
Hw 28 At Pino Grande	28	Tahoe Vista
Hw 28 At National Ave	28	Tahoe Vista
The Old Post Office Restaurant	28	Carnelian Bay
Hw 28. @ Carnelian Woods	28	Carnelian Bay
Hw 28 Before Fabian Way	28	Dollar Hill
Hw 28 At Dollar Hill Driver/ Lake Forest	28	Dollar Hill
Tahoe City Y	28	Tahoe City
Hw. 89 @ Sunnyside	89	Sunny Side
Truckee -- Tahoe City		
7-11 Bus Shelter	89	Squaw Valley
Squaw Valley & Squaw Road Intersection Near Fire Station	89	Squaw Valley
Olympic Village Inn Clocktower	Squaw Valley Road	Squaw Valley
Highway 89 Southbound Near Deerfield Drive	89	Truckee
Highway 89 Northbound Near Mousehole	89	Truckee
Donner Pass Road @ Safeway Shopping Ctr Southbound	Donner Pass Road	Truckee
Truckee -- North Stateline		
Brockway Road Northbound @ Park	Brockway Road	Truckee

Operating Facility

TART buses operate out of the Cabin Creek facility, located off of State Route 89 five miles north of Squaw Valley and three miles south of Truckee. This facility includes office and training space, vehicle maintenance and storage facilities, and a high-capacity CNG fueling facility.

Financial Information

Existing Operating Costs

Table 16 presents the current annual operating costs for Placer County TART service. As shown, costs total $4,290,922 per year. Overall, personnel costs (salaries and benefits) make up the bulk of the costs. In comparison, fuel/lubricant costs equal only 10 percent of total costs. The professional/specialized service costs include seasonal extra drivers, as well as outside facility maintenance costs.

Operating Cost Model

These operating costs, along with the service quantities, are used to develop a cost model for FY 2015/16. Expense line items are allocated to one of three categories – fixed, revenue vehicle-hours, and revenue vehicle-miles – that most closely reflects how changes in service levels impact costs. For example, fuel costs are a function of vehicle-miles, driver salaries are a function of vehicle-hours, while office supplies are fixed. Summing the costs in each category and dividing by the annual service quantities, the resulting cost model is as follows:

FY 2016/17 Annual Operating/Administrative Costs =

$60.62 X Revenue Vehicle-Hours + $1.50 X Revenue Vehicle-Miles + $1,166,455

Operating Revenues

The operating revenues sources for Placer County TART services for the 2015/16 fiscal year are shown in Table 17. This reflects that individual sources are generated through various jurisdictions, such as the Tahoe Regional Planning Agency (TRPA) for services with the Tahoe Basin, Placer County Transportation Planning Agency (PCTPA) for services in Placer County outside the Tahoe Basin, the Town of Truckee for a portion of routes serving Truckee, and the Washoe Regional Transportation Commission for services in Nevada. Overall, Local Transportation Funds generate the largest proportion, totaling 39 percent of all revenues. Placer County's Transient Occupancy Tax (TOT) revenues, allocated through the North Lake Tahoe Resort Association, total 23 percent of operating revenues. The Federal Transit Administration's Section 5311 Rural Transit Program is also an important source, totaling 15 percent of all operating revenues.

TABLE 16: TART FY 2015-16 Operating Budget and Cost Model

Cost Item	Total (3)	Cost Model Variable: Fixed	Cost Model Variable: Revenue Vehicle-Hour	Cost Model Variable: Revenue Vehicle-Mile
Salaries and Wages	$204,100	$204,100		
Overtime & Call Back	$63,000		$63,000	
Salaries & Wages-Oper	$1,048,700		$1,048,700	
Extra Help-Oper	$36,000		$36,000	
Cafeteria Plans (Non-PERS)	$57,700			
P.E.R.S.	$251,300		$251,300	
F.I.C.A.	$92,900		$92,900	
Other Postemployment Benefits	$122,300	$122,300		
Employee Group Ins	$173,811		$173,811	
Workers Comp Insurance	$29,800		$29,800	
Retired Employee Group Insurance	$83,996	$83,996		
Clothes & Personal Supplies	$8,000		$8,000	
Communication Services - Telephone	$23,000	$23,000		
Refuse Disposal	$7,000	$7,000		
General Liability Insurance	$128,400			$128,400
Parts	$9,400			$9,400
Maintenance - Equipment	$650,000			$650,000
Maintenance - Computer Equip	$1,800	$1,800		
Employee Benefits Systems (1)	$24,200	$4,114	$12,826	$7,260
Materials - Bldgs & Impr	$40,000	$40,000		
Membership/Dues	$2,200	$2,200		
PC Acquisition	$400	$400		
Printing	$7,000	$7,000		
Office Supplies & Exp	$2,000	$2,000		
Postage	$1,100	$1,100		
Operating Materials	$7,800		$7,800	
Administration	$168,900	$168,900		
Professional/Specialized Services - Purchased	$427,200	$187,700	$239,500	
Professional/Specialized Services - County	$167,500	$167,500		
Countywide System Charges	$14,800	$14,800		
Fuels & Lubricants	$237,300			$237,300
Special Dept Expense	$49,960	$49,960		
Training	$3,500		$3,500	
Travel & Transportation	$500	$500		
County Vehicle Mileage	$40,000		$40,000	
Utilities	$45,000	$45,000		
Drug & Alcohol Testing	$3,800		$3,800	
Transfer Out A-87 Costs (2)	$56,555	$33,084.68	$14,987	$8,483
TOTAL	$4,290,922	$1,166,455	$2,025,924	$1,040,843
Annual Revenue Vehicle-Hours of Service	**33,418**			
Annual Revenue Vehicle-Miles of Service	**695,845**			

FY 2015-16 Cost Equation	
	$1,166,455 Fixed Costs +
	$60.62 per Revenue Vehicle-Hour +
	$1.50 per Revenue Vehicle-Mile

Note 1: Allocated to cost category based on proportion of salary costs
Note 2: Allocated half to fixed and remainder based on proportion of salary costs
Note 3: Excludes $20,000 budgeted for taxi subsidy program
SOURCE: Placer County

TABLE 17: TART FY 2015/16 Budget Operating Revenues

Funding Source		% of Total
Local Transportation Funds		
Placer County Transportation Agency	$1,003,600	22%
Tahoe Regional Planning Agency	$677,727	15%
Truckee -- for 89 Route	$65,570	1%
Truckee -- for 267 Route	$35,990	1%
State Transportation Assistance		
Placer County Transportation Agency	$92,840	2%
Tahoe Regional Planning Agency	$164,878	4%
Truckee Air Pollution Control District Funds	$62,360	1%
Truckee Tahoe Airport	$62,500	1%
Low Carbon Transit Operations Program	$38,608	1%
Private Funding	$50,000	1%
Transient Occupancy Tax		
Baseline Service	$530,100	12%
Ski Shuttle Service	$21,200	0%
Summer TART Enhancement	$171,900	4%
Night Rider (Winter and Summer)	$326,800	7%
Federal Transit Administration Section 5311 Rural		
Through Nevada Dept of Transportation	$352,564	8%
Through Placer County Transportation Agency	$290,000	6%
Through Tahoe Regional Planning Agency	$54,710	1%
Washoe Regional Transportation Commission	$168,546	4%
Farebox	$403,000	9%
Interest	$3,000	0%
TOTAL	$4,575,893	100%

SOURCE: Placer County

As reflected in this table, funding for services beyond Placer County's jurisdiction is an important element in the overall program. Funding agreements with the other jurisdictions are in turn important factors. In general terms, sources allocated through Nevada (Washoe RTC and FTA 5311 funding administered by the Nevada Department of Transportation) offset the operating subsidy requirements for TART service east of the state line. Funding levels allocated to the Town of Truckee are defined as half of the subsidy needs generated by the Highway 89 Route service between Truckee and Squaw Valley Road and half of the subsidy needs generated by the Highway 267 Route service between Truckee and Northstar Drive. Though the Mainline Route travels slightly into El Dorado County (to Sugar Pine Point State Park), no subsidy funds are received for this route segment.

CONNECTING TRANSPORTATION SERVICES

Truckee TART Services

Beyond the services operated by Placer County, the other element of the coordinated Tahoe Truckee Area Regional Transit network is operated by the Town of Truckee. During the spring, summer and fall, the fixed route element consists of a single bus providing hourly service Monday through Saturday between Donner Lake on the west and the Truckee-Tahoe Airport on the east, from 9:05 AM to 5:05 PM. In winter, service hours are expanded to 6:05 AM to 6:13 PM, days of service are expanded to seven days a week, and the service area is expanded to include the Donner Summit area. Over the entire year, Dial-A-Ride service is also available within Town limits during the hours of fixed route operation.

Amtrak

Amtrak is a national railroad service that provides services to more than 500 destinations in 46 states. Rail service is provided daily to the Truckee Train Station, with the eastbound stop (to Chicago) scheduled for 2:38 PM and the westbound stop (to Emeryville) scheduled for 9:37 AM. In addition, Amtrak Thruway bus service is operated between Sparks, Nevada and Sacramento, for connections to the Capital Corridor rail service to the Bay Area. Truckee passengers can board westbound buses at 8:40 AM, 12:05 PM, and 3:25 PM, and can deboard eastbound buses at 1:00 PM, 3:35 PM, and 6:45 PM. Trips must include travel by connecting rail service.

Greyhound

Greyhound Lines, Inc. is a national bus transportation service with 3,000 stops in North America. As part of the route between Sacramento and Reno, Greyhound buses serve the Truckee Train Station westbound at 9:25 AM and 6:15 PM and eastbound at 12:05 PM, 3:50 PM and 8:45 PM.

Private Winter Skier Shuttle Services

The major winter resorts in the region also provide private shuttle services:

- **Homewood Mountain Resort** operates door-to-door service for residences in the area between Chambers Landing and Timberland, as well as scheduled service 5 times per day at Granlibakken, Sunnyside, and PDQ Market.

- **Squaw Valley / Alpine Meadows** provide continual service between the two base areas from 8:30 AM to 4:30 PM. In addition, shuttle services from the remote Alpine Meadows lot at Deer Park (near the base of Alpine Meadows Road) is provided as necessary.

- **Northstar California** operates an extensive demand-response service within the resort area, as well as bus service connecting the Village with the remote Castle View parking area near SR 267. In addition, a run is operated at 8:00 AM from the Hyatt Regency in Incline Village to Northstar Village via Kings Beach and Tahoe Vista, with a return run departing Northstar Village at 5:15 PM.

- **Diamond Peak Ski Area** provides shuttle service every half-hour between the ski hill and the Hyatt Regency, as well three runs per day that serve other portions of Incline Village. Transfers with TART are available at the Hyatt Regency.

Emerald Bay Trolley

The Tahoe Transportation District has for many years operated a summer-only trolley replica service between the Y area of South Lake Tahoe and Emerald Bay. Depending on funding availability, this service has extended in some summers as far north as Tahoma or Homewood, providing connections with TART. In 2013, the service extended to the Tahoe City Transit Center. In 2015, service consisted of a total of 8 daily runs between 9:00 AM and 7:45 PM, as far north as Homewood, though TTD intends to serve Tahoe City again in 2016.

East Shore Express

The Tahoe Transportation District also operates a shuttle bus service connecting Sand Harbor with an intercept parking lot at the old Incline Village Elementary school site on SR 28 and Southwood Boulevard (west). Service is operated every 20 minutes from 9:00 AM to 6:00 PM, on weekends between June 6th and June 28h, and then daily until Labor Day. This service is part of a coordinated parking/access plan for the popular state park.

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Chapter 4

TART Service Scenarios

Building on the enhancements identified in the Vision Plan and considering recent estimates of potential operating funding availability, three operating scenarios were developed for review. All of these have the following elements in common:

- Improvements to evening service, including rescheduling of evening services to eliminate the existing schedule gaps between daytime and evening service, and implementation of evening service in the spring and fall off-seasons for at least some routes.

- Expansion of routes with half-hourly service frequency during peak seasons, and parallel elimination of the Skier Shuttle.

- Additional administrative, dispatch and mechanic staff.

- Contracting with the Town of Truckee's Dial-A-Ride contractor to provide wheelchair accessible ADA trips.

- Expansion of the marketing budget.

Additional information about these common elements is presented in Chapter 5.

The three service scenarios vary in two key respects: (1) whether evening service and half-hourly service on the SR 267 and SR 89 Routes are extended beyond Squaw Valley Road and Northstar Drive to Truckee and (2) whether transit fares paid directly by the passenger are eliminated.

SCENARIO 1: Free Fare throughout the TART Service Area and Service Enhancements South of Squaw Valley Road and Northstar Drive Only

Under this scenario, passengers would be able to board any TART bus (including in Washoe County and Truckee) at no fare. Peak season hourly evening service would be provided as far north as Squaw Valley and Northstar (as at present), and off-season hourly evening service would also be provided as far north as Squaw Valley and Northstar until roughly 9:00 PM. This offseason evening schedule is shown in Table 18. In addition, daytime half-hourly service would be provided year-round on the Mainline Route between Tahoma and Incline Village, on the SR 89 Route between Tahoe City and Squaw Valley, and on the SR 267 Route between Crystal Bay and Northstar (with the current hourly year-round daytime service provided north of Squaw Valley and Northstar to Truckee). Additional winter peak period runs would be provided to accommodate the increase in ridership generated by the elimination of fares. An analysis of the operational, cost, and ridership impacts of this scenario is presented in Table 19.

TABLE 18: Year-Round Evening Service Schedule -- Service Enhancements South of Squaw Valley Road and Northstar Drive Only

Additional Runs After End of Existing Service

	Last Existing Departure	Evening Runs: **Year-Round**/*Peak Summer and Winter Only*								
Crystal Bay (1)	*6:25 PM*	--	--	**7:00 PM**	**8:00 PM**	**9:00 PM**	*10:00 PM*	*11:00 PM*	*12:00 AM*	*1:00 AM*
Kings Beach		--	--	**7:03 PM**	**8:03 PM**	**9:03 PM**	*10:03 PM*	*11:03 PM*	*12:03 AM*	*1:03 AM*
Tahoe City	*4:50 PM*	**5:30 PM**	**6:30 PM**	**7:30 PM**	**8:30 PM**	**9:30 PM**	*10:30 PM*	*11:30 PM*	*12:30 AM*	*1:30 AM*
Squaw Valley		**6:00 PM**	**7:00 PM**	**8:00 PM**	**9:00 PM**	10:00 PM	*11:00 PM*	*12:00 AM*	*1:00 AM*	*2:00 AM*
Squaw Valley	*6:05 PM*	--	--	**7:00 PM**	**8:00 PM**	*9:00 PM*	*10:00 PM*	*11:00 PM*	*12:00 AM*	*1:00 AM*
Tahoe City	*6:31 PM*	--	--	**7:30 PM**	**8:30 PM**	*9:30 PM*	*10:30 PM*	*11:30 PM*	*12:30 AM*	*1:30 AM*
Kings Beach		--	--	**7:55 PM**	**8:55 PM**	*9:55 PM*	*10:55 PM*	*11:55 PM*	*12:55 AM*	*1:55 AM*
Crystal Bay		--	--	**8:00 PM**	**9:00 PM**	*10:00 PM*	*11:00 PM*	*12:00 AM*	*1:00 AM*	*2:00 AM*
Tahoe City	*5:32 PM*	--	**6:30 PM**	**7:30 PM**	**8:30 PM**	*9:30 PM*	*10:30 PM*	*11:30 PM*	*12:30 AM*	--
Tahoma	*6:10 PM*	--	**7:00 PM**	**8:00 PM**	**9:00 PM**	*10:00 PM*	*11:00 PM*	*12:00 AM*	*1:00 AM*	--
Tahoe City		--	**7:30 PM**	**8:30 PM**	**9:30 PM**	*10:30 PM*	*11:30 PM*	*12:30 AM*	*1:30 AM*	--
Crystal Bay	*5:00 PM*	--	**6:00 PM**	**7:00 PM**	**8:00 PM**	**9:00 PM**	*10:00 PM*	*11:00 PM*	*12:00 AM*	*1:00 AM*
Kings Beach		--	**6:05 PM**	**7:05 PM**	**8:05 PM**	**9:05 PM**	*10:05 PM*	*11:05 PM*	*12:05 AM*	*1:05 AM*
Northstar	*5:21 PM*	--	**6:25 PM**	**7:25 PM**	**8:25 PM**	**9:25 PM**	*10:25 PM*	*11:25 PM*	*12:25 AM*	*1:25 AM*
Kings Beach		--	**6:50 PM**	**7:50 PM**	**8:50 PM**	*9:50 PM*	*10:50 PM*	*11:50 PM*	*12:50 AM*	*1:50 AM*
Crystal Bay		--	**6:55 PM**	**7:55 PM**	**8:55 PM**	*9:55 PM*	*10:55 PM*	*11:55 PM*	*12:55 AM*	*1:55 AM*

Note 1: Existing 6:25 PM westbound Mainline departures lays over in Crystal Bay for 35 minutes.

SCENARIO 2: Free Fare and Service Enhancements throughout the TART Service Area

This option differs from the previous scenario in that the service improvements provided only as far north as Squaw Valley and Northstar in the first scenario (evening service in peak seasons and off-peak seasons, and half-hourly service frequency) would instead be extended on both the SR 89 Route and the SR 267 Route to Truckee. The evening service schedule during peak seasons is shown in Table 20. In light of the lower traffic levels and general lack of weather delays during the off-seasons, it would be possible to provide the early evening off-season evening service on the SR 89 and SR 267 Routes using three buses operating on a three-hour headway combining the two routes (rather than two buses apiece on the two individual routes), as shown in Table 21. The resulting service quantities, costs, and ridership are shown in Table 22.

SCENARIO 3: Maintain Current Daytime Fares and Provide Service Enhancements throughout the TART Service Area

This final scenario provides the full extent of the service enhancements (consistent with Scenario 2) but keeps the existing TART fares on the daytime services. The additional winter "tripper" runs needed to provide adequate capacity would not be needed, though the existing tripper runs between Incline Village and Squaw Valley would still be needed, even with half-hourly service. Rather than the loss of revenue associated with the elimination of fares, the

TABLE 19: TART Service Expansion Scenario -- Expansion South of Squaw Valley Road & Northstar Drive Only, Free Fare

4/6/2016

Excluding Skier Shuttle

Season / Service Period / Service Area	Frequency: Existing	Frequency: Plan	Change in Annual: Revenue Vehicle-Hours	Change in Annual: Revenue Vehicle-Miles	Change in Annual: Operating Cost	Change in Annual: Peak Buses	Total With Plan: Revenue Veh-Hrs	Total With Plan: Peak Buses	Total With Plan: Marginal Operating	Ridership Analysis: Existing Ridership	Plan Ridership Factors (1 = No Change): Headway	Route	Span	Days	Overall	Ridership with Plan	Increase in Ridership
SUMMER June 27 Thru Sept 15																	
Day: 6:30 AM - 6:30 PM																	
Tahoe City -- Truckee	Hourly	30 Min	1,455	28,124	$130,300	1	2,976	3	$270,000	10,309	1.30	1.00	1.00	1.23	1.60	16,443	6,134
Truckee -- Crystal Bay	Hourly	30 Min	1,480	29,231	$133,400	1	2,976	3	$266,300	4,938	1.32	1.00	1.00	1.23	1.62	8,004	3,066
Tahoe City -- Crystal Bay	30 Min	30 Min	550	12,508	$52,100	0	2,046	2	$193,600	23,137	1.00	1.00	1.00	1.23	1.23	28,407	5,270
West Shore	Hourly	30 Min	1,323	28,637	$123,000	1	2,139	2	$198,900	7,801	1.46	1.00	1.00	1.23	1.80	14,023	6,222
Crystal Bay -- Incline Village	30 Min	30 Min	313	6,528	$28,700	0	1,163	1	$106,800	7,372	1.00	1.00	1.00	1.23	1.23	9,051	1,679
Evening: 6:30 PM - 2:00 AM																	
Tahoe City -- Squaw Valley	Hourly	Hourly	268	3,895	$22,100	0	744	1	$65,800	3,744	1.00	1.00	1.21	1.23	1.49	5,582	1,838
Northstar -- Crystal Bay	Hourly	Hourly	328	7,187	$30,600	0	736	1	$66,900	2,891	1.00	1.00	1.33	1.23	1.64	4,733	1,842
Tahoe City -- Crystal Bay	Hourly	Hourly	175	3,980	$16,600	0	651	1	$61,600	7,319	1.00	1.00	1.00	1.23	1.23	8,986	1,667
West Shore	Hourly	Hourly	175	3,788	$16,300	0	651	1	$60,500	3,364	1.00	1.00	1.00	1.23	1.23	4,130	766
WINTER Dec 13 to Apr 7																	
Day: 6:30 AM - 6:30 PM																	
Tahoe City -- Truckee (1)	Hourly	30 Min	1,624	30,737	$144,400	2	4,176	4	$378,900	32,169	1.30	1.00	1.00	1.00	1.30	41,792	9,623
Truckee -- Crystal Bay (1)	Hourly	30 Min	1,624	32,489	$147,000	2	4,176	4	$373,700	23,962	1.32	1.00	1.00	1.00	1.32	31,636	7,673
Tahoe City -- Crystal Bay (1)	Hourly	30 Min	1,856	42,210	$175,700	1	3,480	3	$329,400	68,148	1.46	1.00	1.00	1.00	1.46	99,775	31,627
West Shore	Hourly	30 Min	1,276	27,620	$118,700	1	2,668	2	$248,100	14,248	1.46	1.00	1.00	1.00	1.46	20,860	6,612
Crystal Bay -- Incline Village	30 Min	30 Min	0	0	$0	0	1,450	1	$133,200	8,646	1.00	1.00	1.00	1.00	1.00	8,646	0
Evening: 6:30 PM - 2:00 AM																	
Tahoe City -- Squaw Valley	Hourly	Hourly	116	299	$7,500	0	928	1	$82,100	11,987	1.00	1.00	1.21	1.00	1.21	14,556	2,569
Northstar -- Crystal Bay	Hourly	Hourly	222	5,440	$21,600	0	918	1	$83,400	7,955	1.00	1.00	1.33	1.00	1.33	10,607	2,652
Tahoe City -- Crystal Bay	Hourly	Hourly	0	0	$0	0	812	1	$76,800	14,156	1.00	1.00	1.00	1.00	1.00	14,156	0
West Shore (2)	Hourly	Hourly	0	0	$0	0	812	1	$75,500	8,443	1.00	1.00	1.00	1.00	1.00	8,443	0
SPRING / FALL																	
Day: 6:30 AM - 6:30 PM																	
Tahoe City -- Truckee	Hourly	Hourly	-550	-11,489	-$50,500	0	3,432	2	$315,300	26,963	1.00	1.00	1.00	0.86	0.86	23,239	-3,724
Truckee -- Crystal Bay	Hourly	Hourly	-550	-10,360	-$48,800	0	3,432	2	$304,800	12,915	1.00	1.00	1.00	0.86	0.86	11,131	-1,784
Tahoe City -- Crystal Bay	Hourly	30 Min	1,210	27,518	$114,500	0	3,744	2	$354,300	46,434	1.46	1.00	1.00	0.86	1.26	58,593	12,159
West Shore	Hourly	Hourly	-300	-6,494	-$27,900	0	1,872	1	$174,100	12,626	1.00	1.00	1.00	0.86	0.86	10,882	-1,744
Crystal Bay -- Incline Village	30 Min	30 Min	-313	-6,528	-$28,700	0	1,950	1	$179,100	14,456	1.00	1.00	1.00	0.86	0.86	12,459	-1,997
Evening: 6:30 PM - 9:30 PM																	
Tahoe City -- Squaw Valley	--	Hourly	468	8,705	$41,400	1	468	1	$41,400	0	--	--	--	--	--	3,200	3,200
Northstar -- Crystal Bay	--	Hourly	533	10,767	$48,400	1	533	1	$48,400	0	--	--	--	--	--	3,100	3,100
Tahoe City -- Crystal Bay	--	Hourly	390	8,870	$36,900	1	390	1	$36,900	0	--	--	--	--	--	4,800	4,800
West Shore	--	Hourly	468	10,130	$43,500	1	468	1	$43,500	0	--	--	--	--	--	2,700	2,700
TOTAL			14,142	293,791	$1,296,800	3	49,791	14	$4,569,300	373,984						480,000	105,949
					Existing Employee Ridership				103,333								
					Existing Riders Directly Paying Fare				270,651								
					Impact of Elimination of Fares				50%	Existing Not Directly Paying Fare =						188,300	
					Total											668,300	
					Increase over Existing											*294,316*	

Note 1: Includes two additional AM and two additional PM runs to address vehicle overcrowding between Tahoe City and Squaw Valley, Tahoe City and North Stateline, and Northstar and North Stateline.

TABLE 20: Peak Season Evening Service Schedule -- Service Enhancements to Truckee

Additional Runs After End of Existing Service

	Last Existing Departure	Evening Runs: Peak Summer and Winter Only								
Crystal Bay (1)	*6:25 PM*	--	--	7:00 PM	8:00 PM	9:00 PM	10:00 PM	11:00 PM	12:00 AM	1:00 AM
Kings Beach		--	--	7:03 PM	8:03 PM	9:03 PM	10:03 PM	11:03 PM	12:03 AM	1:03 AM
Tahoe City	*5:32 PM*	--	6:30 PM	7:30 PM	8:30 PM	9:30 PM	10:30 PM	11:30 PM	12:30 AM	1:30 AM
Tahoma	*6:10 PM*	--	7:00 PM	8:00 PM	9:00 PM	10:00 PM	11:00 PM	12:00 AM	1:00 AM	--
Tahoe City	*6:31 PM*	--	7:30 PM	8:30 PM	9:30 PM	10:30 PM	11:30 PM	12:30 AM	1:30 AM	--
Kings Beach		--	7:55 PM	8:55 PM	9:55 PM	10:55 PM	11:55 PM	12:55 AM	1:55 AM	--
Crystal Bay		--	8:00 PM	9:00 PM	10:00 PM	11:00 PM	12:00 AM	1:00 AM	2:00 AM	--
Tahoe City	*4:50 PM*	5:30 PM	6:30 PM	7:30 PM	8:30 PM	9:30 PM	10:30 PM	11:30 PM	12:30 AM	1:30 AM
Squaw Valley	*5:04 PM*	5:44 PM	6:44 PM	7:44 PM	8:44 PM	9:44 PM	10:44 PM	11:44 PM	12:44 AM	1:44 AM
Truckee (Arr)		6:10 PM	7:10 PM	8:10 PM	9:10 PM	10:10 PM	11:10 PM	12:10 AM	1:10 AM	2:10 AM
Truckee (Dep)	*5:30 PM*	6:30 PM	7:30 PM	8:30 PM	9:30 PM	10:30 PM	11:30 PM	12:30 AM	1:30 AM	--
Squaw Valley	*6:05 PM*	6:52 PM	7:52 PM	8:52 PM	9:52 PM	10:52 PM	11:52 PM	12:52 AM	1:52 AM	--
Tahoe City	*6:31 PM*	7:15 PM	8:15 PM	9:15 PM	10:15 PM	11:15 PM	12:15 AM	1:15 AM	2:15 AM	--
Crystal Bay	*5:00 PM*	--	6:00 PM	7:00 PM	8:00 PM	9:00 PM	10:00 PM	11:00 PM	12:00 AM	1:00 AM
Kings Beach		--	6:05 PM	7:05 PM	8:05 PM	9:05 PM	10:05 PM	11:05 PM	12:05 AM	1:05 AM
Northstar	*5:25 PM*	--	6:25 PM	7:25 PM	8:25 PM	9:25 PM	10:25 PM	11:25 PM	12:25 AM	1:25 AM
Truckee (Arr)			6:50 PM	7:50 PM	8:50 PM	9:50 PM	10:50 PM	11:50 PM	12:50 AM	1:50 AM
Truckee (Dep)	*5:00 PM*	6:00 PM	7:00 PM	8:00 PM	9:00 PM	10:00 PM	11:00 PM	12:00 AM	1:00 AM	--
Northstar	*5:21 PM*	6:21 PM	7:21 PM	8:21 PM	9:21 PM	10:21 PM	11:21 PM	12:21 AM	1:21 AM	--
Kings Beach		6:46 PM	7:46 PM	8:46 PM	9:46 PM	10:46 PM	11:46 PM	12:46 AM	1:46 AM	--
Crystal Bay		6:51 PM	7:51 PM	8:51 PM	9:51 PM	10:51 PM	11:51 PM	12:51 AM	1:51 AM	--

Note 1: Existing 6:25 PM westbound Mainline departures lays over in Crystal Bay for 35 minutes.

TABLE 21: Offseason Evening Service Schedule -- Service Enhancements to Truckee

Additional Runs After End of Existing Service

	Last Existing Departure						
Mainline							
Tahoma	*6:10 PM*	--	--	--	7:10 PM	8:10 PM	9:10 PM
Tahoe City	*6:31 PM*	--	--	--	7:31 PM	8:31 PM	9:31 PM
Kings Beach		--	--	--	7:52 PM	8:52 PM	--
Crystal Bay		--	--	--	7:56 PM	8:56 PM	--
Crystal Bay	*6:25 PM*	--	--	7:00 PM	8:00 PM	9:00 PM	--
Kings Beach		--	--	7:03 PM	8:03 PM	9:03 PM	--
Tahoe City	*5:32 PM*	--	6:30 PM	7:30 PM	8:30 PM	9:30 PM	--
Tahoma		--	6:50 PM	7:50 PM	8:50 PM	--	--
Combined 89 / 267							
Tahoe City	*4:50 PM*	--	5:30 PM	6:30 PM	7:30 PM	8:30 PM	9:30 PM
Squaw Valley		--	5:46 PM	6:46 PM	7:46 PM	8:46 PM	9:46 PM
Truckee	*5:00 PM*	--	6:11 PM	7:11 PM	8:11 PM	9:11 PM	--
Northstar		--	6:29 PM	7:29 PM	8:29 PM	--	--
Kings Beach		--	6:49 PM	7:49 PM	8:49 PM	--	--
Crystal Bay		--	6:54 PM	7:54 PM	8:54 PM	--	--
Crystal Bay	*5:00 PM*	5:57 PM	6:57 PM	7:57 PM	8:57 PM	--	--
Kings Beach		6:00 PM	7:00 PM	8:00 PM	9:00 PM	--	--
Northstar		6:20 PM	7:20 PM	8:20 PM	9:20 PM	--	--
Truckee	*5:30 PM*	6:39 PM	7:39 PM	8:39 PM	9:39 PM	--	--
Squaw Valley		6:59 PM	7:59 PM	8:59 PM	--	--	--
Tahoe City		7:20 PM	8:20 PM	9:20 PM	--	--	--

TABLE 22: TART Service Expansion Scenario -- Expansion to Truckee, Free Fare

4/6/2016

Excluding Skier Shuttle

Season / Service Period / Service Area	Frequency: Existing	Frequency: Plan	Change in Annual: Revenue Vehicle-Hours	Change in Annual: Revenue Vehicle-Miles	Change in Annual: Operating Cost	Change in Annual: Peak Buses	Total With Plan: Revenue Veh-Hrs	Total With Plan: Peak Buses	Total With Plan: Marginal Operating	Ridership Analysis: Existing Ridership	Plan Ridership Factors (1 = No Change): Headway	Route	Span	Days	Overall	Ridership with Plan	Increase in Ridership
SUMMER: June 27 Thru Sept 15																	
Day: 6:30 AM - 6:30 PM																	
Tahoe City -- Truckee	Hourly	30 Min	2,385	46,841	$214,700	2	3,906	4	$354,400	10,309	1.46	1.00	1.00	1.23	1.80	18,531	8,222
Truckee -- Crystal Bay	Hourly	30 Min	2,410	47,172	$216,700	2	3,906	4	$349,500	4,938	1.46	1.00	1.00	1.23	1.80	8,876	3,938
Tahoe City -- Crystal Bay	30 Min	30 Min	550	12,508	$52,100	0	2,046	2	$193,600	23,137	1.00	1.00	1.00	1.23	1.23	28,407	5,270
West Shore	Hourly	30 Min	1,323	28,637	$123,000	1	2,139	2	$198,900	7,801	1.46	1.00	1.00	1.23	1.80	14,023	6,222
Crystal Bay -- Incline Village	30 Min	30 Min	313	6,528	$28,700	0	1,163	1	$106,800	7,372	1.00	1.00	1.00	1.23	1.23	9,051	1,679
Evening: 6:30 PM - 2:00 AM																	
Tahoe City -- Squaw Valley	Hourly	Hourly	1,051	18,455	$91,300	1	1,527	2	$135,000	3,744	1.00	1.59	1.21	1.23	2.37	8,860	5,116
Northstar -- Crystal Bay	Hourly	Hourly	1,051	21,777	$96,300	1	1,459	2	$132,500	2,891	1.00	1.45	1.33	1.23	2.37	6,859	3,968
Tahoe City -- Crystal Bay	Hourly	Hourly	175	3,980	$16,600	0	651	1	$61,600	7,319	1.00	1.00	1.00	1.23	1.23	8,986	1,667
West Shore	Hourly	Hourly	175	3,788	$16,300	0	651	1	$60,500	3,364	1.00	1.00	1.00	1.23	1.23	4,130	766
WINTER: Dec 13 to Apr 7																	
Day: 6:30 AM - 6:30 PM																	
Tahoe City -- Truckee (1)	Hourly	30 Min	2,784	54,083	$249,700	3	5,336	5	$484,100	32,169	1.46	1.00	1.00	1.00	1.46	47,098	14,929
Truckee -- Crystal Bay (1)	Hourly	30 Min	2,784	54,867	$250,800	3	5,336	5	$477,500	23,962	1.46	1.00	1.00	1.00	1.46	35,083	11,121
Tahoe City -- Crystal Bay (1)	Hourly	30 Min	1,856	42,210	$175,700	2	3,480	3	$329,400	68,148	1.46	1.00	1.00	1.00	1.46	99,775	31,627
West Shore	Hourly	30 Min	1,276	27,620	$118,700	1	2,668	2	$248,100	14,248	1.46	1.00	1.00	1.00	1.46	20,860	6,612
Crystal Bay -- Incline Village	30 Min	30 Min	0	0	$0	0	1,450	1	$133,200	8,646	1.00	1.00	1.00	1.00	1.00	8,646	0
Evening: 6:30 PM - 2:00 AM																	
Tahoe City -- Squaw Valley	Hourly	Hourly	1,092	18,459	$93,800	1	1,904	2	$168,400	11,987	1.00	1.59	1.21	1.00	1.93	23,105	11,118
Northstar -- Crystal Bay	Hourly	Hourly	1,123	23,639	$103,500	1	1,819	2	$165,300	7,955	1.00	1.45	1.33	1.00	1.93	15,372	7,417
Tahoe City -- Crystal Bay	Hourly	Hourly	0	0	$0	0	812	1	$76,800	14,156	1.00	1.00	1.00	1.00	1.00	14,156	0
West Shore (2)	Hourly	Hourly	0	0	$0	0	812	1	$75,500	8,443	1.00	1.00	1.00	1.00	1.00	8,443	0
SPRING / FALL																	
Day: 6:30 AM - 6:30 PM																	
Tahoe City -- Truckee	Hourly	Hourly	-550	-11,489	-$50,500	0	3,432	2	$315,300	26,963	1.00	1.00	1.00	0.86	0.86	23,239	-3,724
Truckee -- Crystal Bay	Hourly	Hourly	-550	-10,360	-$48,800	0	3,432	2	$304,800	12,915	1.00	1.00	1.00	0.86	0.86	11,131	-1,784
Tahoe City -- Crystal Bay	Hourly	Hourly	1,210	27,518	$114,500	0	3,744	1	$354,300	46,434	1.46	1.00	1.00	0.86	1.26	58,593	12,159
West Shore	Hourly	Hourly	-300	-6,494	-$27,900	0	1,872	1	$174,100	12,626	1.00	1.00	1.00	0.86	0.86	10,882	-1,744
Truckee -- Donner Summit		--	0	0	$0		0	0	$0	--	--	--	--	0.86	--	0	0
Crystal Bay -- Incline Village	30 Min	30 Min	-313	-6,528	-$28,700	0	1,950	1	$179,100	14,456	1.00	1.00	1.00	0.86	0.86	12,459	-1,997
Evening: 6:30 PM - 9:30 PM																	
Tahoe City -- Squaw Valley	--	Hourly	831	15,451	$73,500	2	831	1.5	$73,500	0	--	--	--	--	--	4,300	4,300
Northstar -- Crystal Bay	--	Hourly	831	16,780	$75,500	2	831	1.5	$75,500	0	--	--	--	--	--	3,500	3,500
Tahoe City -- Crystal Bay	--	Hourly	390	8,870	$36,900	1	390	1	$36,900	0	--	--	--	--	--	4,800	4,800
West Shore	--	Hourly	468	10,130	$43,500	1	468	1	$43,500	0	--	--	--	--	--	2,700	2,700
TOTAL			22,364	454,441	$2,035,900	9	58,014	16	$5,308,100	373,984						512,000	137,882

Existing Employee Ridership	103,333		
Existing Riders Directly Paying	270,651		
Impact of Elimination of Fares	50%	Existing Not Directly Paying Fare =	204,300
Total			716,300
Increase over Existing			*342,316*

Note 1: Includes two additional AM and two additional PM runs to address vehicle overcrowding between Tahoe City and Squaw Valley, Tahoe City and North Stateline, and Northstar and North Stateline.

increase in ridership generated by the service improvements would increase fare revenues. Service, cost and ridership analysis for this scenario is presented in Table 23.

COMPARISON OF SCENARIOS

Table 24 presents a summary of the three scenarios, reflecting the trade-offs between the options:

- The potential ridership ranges from a low of 136,400 additional passenger boardings per year (Scenario 3) up to 340,200 (Scenario 2). Scenario 1 is much closer to the higher end of this range than the lower, at 294,200. Compared with existing ridership, these increases range from a 36 percent increase up to a 91 percent increase.

- The increase in the size of the TART program (as measured in annual vehicle-hours of service) ranges from a 39 percent increase under Scenario 1 through a 60 percent increase under Scenario 3 to a 61 percent increase under Scenario 2.

- The estimated annual operating cost (in round terms) ranges from $5.6 Million (Scenario 1) to $6.3 Million (Scenario 2). This reflects a $1.3 Million increase under Scenario 1, a $2.0 Million increase under Scenario 2 and a $1.7 Million increase under Scenario 3.

- Considering the loss in farebox revenues under the first two scenarios and the growth in farebox revenues under the third, the net impact on annual operating subsidy is an increase of $1.7 Million under Scenario 1, $2.4 Million under Scenario 2 and $1.6 Million under Scenario 3.

- In comparison with the current peak of 10 TART buses in operation, Scenario 1 would require 4 additional buses, Scenario 3 would require 5, and Scenario 2 would require 6.

- A key performance measure of a transit plan is the marginal productivity – the marginal growth in ridership for every new vehicle-hour of service operated. This measure varies significantly from a low of 6.4 passengers added for every new hour of service for Scenario 3 through 15.6 for Scenario 2 to 21.0 for Scenario 1. Put another way, every new hour of service added under Scenario 1 generates more than 3 times the ridership increase as a new hour of service added under Scenario 3 (thanks in large part to the ridership benefit of the elimination of fares).

- Another key measure is the marginal subsidy per marginal new passenger-trip. This is particularly important as it relates the key public “input” -- subsidy dollars – with the key desired “output” – new ridership. As shown, an additional $5.77 in subsidy is required for every additional transit rider gained under Scenario 1, compared with $6.94 under Scenario 2 and $11.67 under Scenario 3.

TABLE 23: TART Service Expansion Operating, Cost and Ridership Impacts

4/6/2016

Excluding Skier Shuttle

Season / Service Period / Service Area	Frequency: Existing	Frequency: Plan	Change in Annual: Revenue Vehicle-Hours	Change in Annual: Revenue Vehicle-Miles	Change in Annual: Operating Cost	Total With Plan: Revenue Veh-Hrs	Total With Plan: Peak Buses	Total With Plan: Marginal Operating	Ridership Analysis: Existing Ridership	Plan Ridership Factors (1 = No Change): Headway	Route	Span	Days	Overall	Ridership with Plan	Increase in Ridership
SUMMER June 27 Thru Sept 15																
Day: 6:30 AM - 6:30 PM																
Tahoe City -- Truckee	Hourly	30 Min	2,385	46,841	$214,700	3,906	4	$354,400	10,309	1.46	1.00	1.00	1.23	1.80	18,531	8,222
Truckee -- Crystal Bay	Hourly	30 Min	2,410	47,172	$216,700	3,906	4	$349,500	4,938	1.46	1.00	1.00	1.23	1.80	8,876	3,938
Tahoe City -- Crystal Bay	30 Min	30 Min	550	12,508	$52,100	2,046	2	$193,600	23,137	1.00	1.00	1.00	1.23	1.23	28,407	5,270
West Shore	Hourly	30 Min	1,323	28,637	$123,000	2,139	2	$198,900	7,801	1.46	1.00	1.00	1.23	1.80	14,023	6,222
Crystal Bay -- Incline Village	30 Min	30 Min	313	6,528	$28,700	1,163	1	$106,800	7,372	1.00	1.00	1.00	1.23	1.23	9,051	1,679
Evening: 6:30 PM - 2:00 AM																
Tahoe City -- Squaw Valley	Hourly	Hourly	1,051	18,455	$91,300	1,527	2	$135,000	3,744	1.00	1.59	1.21	1.23	2.37	8,860	5,116
Northstar -- Crystal Bay	Hourly	Hourly	1,051	21,777	$96,300	1,459	2	$132,500	2,891	1.00	1.45	1.33	1.23	2.37	6,859	3,968
Tahoe City -- Crystal Bay	Hourly	Hourly	175	3,980	$16,600	651	1	$61,600	7,319	1.00	1.00	1.00	1.23	1.23	8,986	1,667
West Shore (2)	Hourly	Hourly	175	3,788	$16,300	651	1	$60,500	3,364	1.00	1.00	1.00	1.23	1.23	4,130	766
WINTER Dec 13 to Apr 7																
Day: 6:30 AM - 6:30 PM																
Tahoe City -- Truckee	Hourly	30 Min	2,552	49,414	$228,600	5,104	4.5	$463,100	32,169	1.46	1.00	1.00	1.00	1.46	47,098	14,929
Truckee -- Crystal Bay	Hourly	30 Min	2,552	50,391	$230,100	5,104	4.5	$456,700	23,962	1.46	1.00	1.00	1.00	1.46	35,083	11,121
Tahoe City -- Crystal Bay	Hourly	30 Min	1,392	31,658	$131,700	3,016	3	$285,400	68,148	1.46	1.00	1.00	1.00	1.46	99,775	31,627
West Shore	Hourly	30 Min	1,276	27,620	$118,700	2,668	2	$248,100	14,248	1.46	1.00	1.00	1.00	1.46	20,860	6,612
Crystal Bay -- Incline Village	30 Min	30 Min	0	0	$0	1,450	1	$133,200	8,646	1.00	1.00	1.00	1.00	1.00	8,646	0
Evening: 6:30 PM - 2:00 AM																
Tahoe City -- Squaw Valley	Hourly	Hourly	1,092	18,459	$93,800	1,904	2	$168,400	11,987	1.00	1.59	1.21	1.00	1.93	23,105	11,118
Northstar -- Crystal Bay	Hourly	Hourly	1,123	23,639	$103,500	1,819	2	$165,300	7,955	1.00	1.45	1.33	1.00	1.93	15,372	7,417
Tahoe City -- Crystal Bay	Hourly	Hourly	0	0	$0	812	1	$76,800	14,156	1.00	1.00	1.00	1.00	1.00	14,156	0
West Shore (2)	Hourly	Hourly	0	0	$0	812	1	$75,500	8,443	1.00	1.00	1.00	1.00	1.00	8,443	0
SPRING/FALL																
Day: 6:30 AM - 6:30 PM																
Tahoe City -- Truckee	Hourly	Hourly	-550	-11,489	-$50,500	3,432	2	$315,300	26,963	1.00	1.00	1.00	0.86	0.86	23,239	-3,724
Truckee -- Crystal Bay	Hourly	Hourly	-550	-10,360	-$48,800	3,432	2	$304,800	12,915	1.00	1.00	1.00	0.86	0.86	11,131	-1,784
Tahoe City -- Crystal Bay	Hourly	Hourly	1,210	27,518	$114,500	3,744	1	$354,300	46,434	1.46	1.00	1.00	0.86	1.26	58,593	12,159
West Shore	Hourly	Hourly	-300	-6,494	-$27,900	1,872	1	$174,100	12,626	1.00	1.00	1.00	0.86	0.86	10,882	-1,744
Crystal Bay -- Incline Village	30 Min	30 Min	-313	-6,528	-$28,700	1,950	1	$179,100	14,456	1.00	1.00	1.00	0.86	0.86	12,459	-1,997
Evening: 6:30 PM - 9:30 PM																
Tahoe City -- Squaw Valley	--	Hourly	831	15,451	$73,500	831	1.5	$73,500	0	--	--	--	--	--	4,300	4,300
Northstar -- Crystal Bay	--	Hourly	831	16,780	$75,500	831	1.5	$75,500	0	--	--	--	--	--	3,500	3,500
Tahoe City -- Crystal Bay	--	Hourly	390	8,870	$36,900	390	1	$36,900	0	--	--	--	--	--	4,800	4,800
West Shore	--	Hourly	468	10,130	$43,500	468	1	$43,500	0	--	--	--	--	--	2,700	2,700
TOTAL			21,436	434,744	$1,950,100	57,086	15	$5,222,300	373,984						512,000	137,882
										Subtotal: Evening						*45,352*
										Subtotal: Daytime						*92,530*
										Average Daytime Fare						$1.26
										Change in Fare Revenue						$116,600

TABLE 24: TART Scenario Impacts at Full Implementation

	Scenario		
	1. Free Fare, Service Expansion South of Squaw Valley & Northstar Only	2. Free Fare, Service Expansion to Truckee	3. Fares Remain, Service Expansion to Truckee
Change in Annual Ridership	294,200	340,900	136,400
% Change in Annual Ridership	78%	91%	36%
Change in Annual Revenue Vehicle-Hours	13,982	21,849	21,436
% Growth in Annual Revenue Vehicle-Hours	39%	61%	60%
Annual Operating Cost	$5,584,900	$6,324,000	$6,153,000
Change in Annual Operating Cost	$1,294,000	$1,963,700	$1,709,000
Change in Fare Revenues	-$403,000	-$403,000	$116,600
Change in Annual Operating Subsidy	$1,697,000	$2,366,700	$1,592,400
Peak Buses	14	16	15
Change in Peak Buses	4	6	5
Marginal Passengers per Revenue Vehicle Hour	21.0	15.6	6.4
Marginal Subsidy per Passenger	$5.77	$6.94	$11.67

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Chapter 5

TART Systems Plan for Eastern Placer County

The following plan builds upon the substantial work conducted over the last four years through the regional Transit Vision effort, and is based upon the evaluation of current conditions discussed in previous chapters. Reasonably foreseeable operating funding is not sufficient to fully fund all Transit Vision improvements. Therefore, this plan is segmented into a "financially constrained" elements (those that can be funded with the reasonably foreseeable funding sources), and "financially unconstrained" elements. An overall map of planned enhancements is presented in Figure 5.

FINANCIALLY CONSTRAINED SERVICE PLAN

The following service improvements are planned under the financially constraints. Note that as service improvements are dependent on development of new funding sources, the schedule for specific improvements may vary from the optimal case presented in this document.

Fixed Route Service Improvements

Increase Peak Season Service Frequency

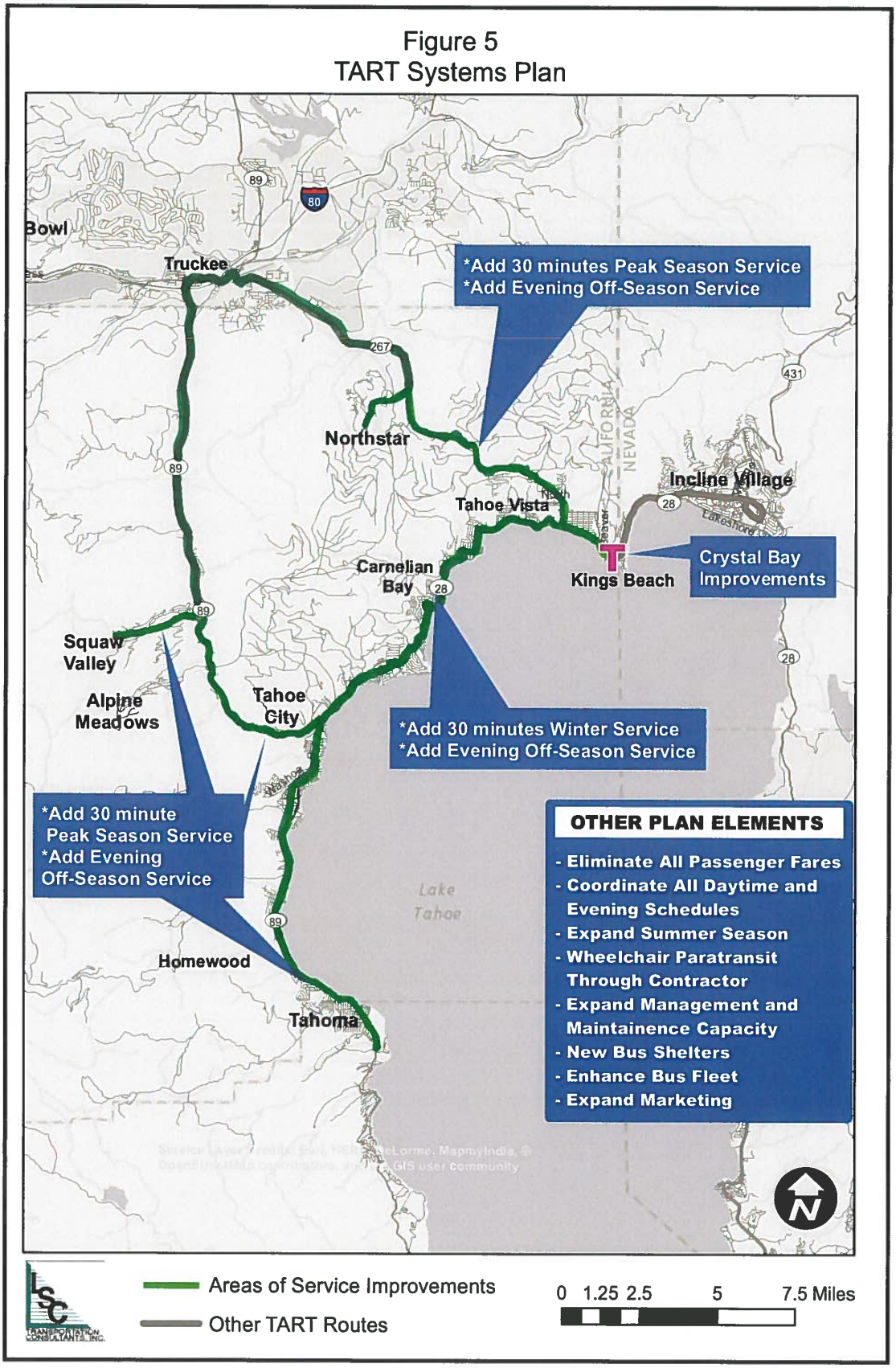
With the exception of service in Washoe County (year round) and on the North Shore between Tahoe City and Crystal Bay (summer only), TART service operates only on hourly frequency. The need to wait substantial lengths of time for many individual's trips and the long wait for the next bus if an individual misses a bus makes this low frequency of service a substantial detriment to the overall convenience and attractiveness of service, particularly to visitors. During the summer and winter seasons, consistent half-hourly service frequency will be provided during the daytime on all TART Mainline service (including the North and West Shores), along SR 89 between Tahoe City and Truckee, and along SR 267 between Crystal Bay and Truckee. As an implementation step, service improvements on the SR 89 Route may be implemented between Tahoe City and Squaw Valley in an initial phase, as well as service improvements on the SR 267 Route between Crystal Bay and Northstar.

Implementation of this service enhancement will be as follows:

- Starting in the winter of 2016/17, daytime service frequency between Tahoe City and Crystal Bay will be expanded to half-hourly. One run in the morning and afternoon peak periods will be "skipped" so that the bus can instead be used to serve Squaw Valley, providing one-seat trips between Squaw Valley and Incline Village at these key times.

- Half-hourly service will be expanded to include the SR 89 Route between Tahoe City and Squaw Valley and the SR 267 Route between Crystal Bay and Northstar as well as the West Shore Route in both winter and summer starting with the winter of 2017/18.

Figure 5
TART Systems Plan



- Half-hourly service will be extended north from Squaw Valley to Truckee as well as north from Northstar to Truckee in both summer and winter, starting with the winter of 2018/19.

As part of this strategy, the existing Skier Shuttle program will be eliminated (as the additional capacity will be provided by the new half-hourly winter runs). Some of the new half-hourly winter runs will be inter-lined between the North Shore and SR 89 corridors (rather than the North Shore and West Shore corridors) in order to provide convenient one-seat service between the North Shore and Squaw Valley/Alpine Meadows without the need to transfer in Tahoe City.

Increase North Shore Service Frequency in Off Seasons

The North Shore Route between Tahoe City and Crystal Bay has the highest ridership of the TART routes, year-round. Providing half-hourly service in the off-seasons, coupled with the previous improvement and the existing half-hourly summer service, will provide consistent and cost-effective year-round service on this key route. Off-season half-hourly service between Tahoe City and Crystal bay will be initiated in the fall of 2017.

Expand the Days of Summer Service Levels

The peak summer season will be expanded from the current 68 days (June 27 to Labor Day) to 93 days (June 15 through September 15), starting with the summer of 2017. This reflects growing activity earlier in the summer and later into the fall.

Improved Evening Service Including Off-Season Evening Service for TART Service Areas South of Squaw Valley and Northstar.

At present, evening service is limited to the summer and winter seasons only. The lack of evening service in the off-seasons limits residents to travel for work, shopping and recreation in the evening. Employees unable to travel home from work by transit in the off seasons are less likely to use transit services throughout the year. As shown in Table 18, above, evening service will be provided in the spring and fall seasons until roughly 9:00 PM (depending upon the specific run), for TART services south of Squaw Valley Road and Northstar Drive, starting in the fall of 2017.

In addition, the current evening service schedule was developed for a separate contracted service, and results in gaps in service between the end of daytime service and the beginning of evening service. With operation of both services by TART, these existing gaps will be filled, and the evening service schedule modified to provide a more consistent and convenient service south of Squaw Valley and Northstar. Finally, one additional late night hour of service is provided on the SR 267 service, to be consistent with the span of service on the Mainline and SR 89 service. These improvements will be implemented in the winter of 2017/18.

Additional Morning 267 Route Northbound Run

With the growth in ridership on the 267 Route, there is demand for a 6:00 AM northbound departure in the winter. This run will be added starting in the winter of 2016/17.

Summary

In summary, the operational, cost and ridership impacts of these financially constrained service improvements as follows:

- The service improvements will add an estimated 22,400 vehicle-hours of TART service per year. This is equivalent to a 67 percent expansion in TART service.
- An additional three buses will be operating at peak times.
- Total operating costs at full implementation (at current cost rates) will increase by $1,857,000 per year.
- The overall productivity of TART services, as measured by the passenger-trips served for every vehicle-hour of revenue service, will decrease from 11.2 to 8.9, reflecting the additional services in less productive service periods.

Detailed year-by-year ridership forecasts are shown in Table 25. Total annual ridership will increase by 120,800 passenger-trips per year, which is a 32 percent increase over current ridership.

It should be noted that there will also be some ridership benefits not reflected in these figures. For instance, evening off-season service will allow some persons to work year-round at positions that they currently cannot access by transit due to the lack of off-season service, which will in turn increase ridership during the peak seasons.

Provide Wheelchair-Accessible Paratransit Service through Town of Truckee Contractor

At present, all complementary paratransit trips required under the Americans with Disabilities Act for TART service are provided through a contract with Blue Mountain Taxi. While the large majority (93 percent) of passengers does not use a wheelchair, 7 percent require a wheelchair-accessible vehicle. As the taxis are not wheelchair accessible, this requires TART staff to use a county vehicle to provide the trip. This is an inefficient use of limited staff time.

The County will negotiate with the contracted provider of Truckee's Dial-A-Ride service (Paratransit Services, Inc.) to provide these trips that require a wheelchair-accessible vehicle. If needed, the County can provide a van to the contractor. A review of the 14-15 ADA service logs indicates that only 28 one-way wheelchair user trips were provided over the year. All of these were for travel between Kings Beach and Truckee. As each trip would require approximately

TABLE 25: TART Short-Range Transit Improvements Ridership Forecasts

All Figures in Thousands

Plan Element	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21
Base Case Ridership [1]	375.4	375.4	375.4	375.4	375.4
Financially Constrained Service Plan Elements					
Expand Summer Season	0.0	0.5	0.5	0.5	0.5
Peak Season Evening Service Expansion: South of Squaw Valley and Northstar	0.0	4.7	11.3	11.3	11.3
Off-Season Evening Service Expansion: South of Squaw Valley and Northstar	0.0	9.1	12.4	13.7	13.7
Additional Morning Winter 267 Run	4.9	4.9	4.9	4.9	4.9
Winter Half-Hourly North Shore Service Frequency	16.1	0.0	0.0	0.0	0.0
Peak Season Half-Hourly Service: South of Squaw Valley and Northstar	0.0	25.1	68.4	68.4	68.4
Winter Half-Hourly Service Frequency Extension to Truckee	0.0	0.0	0.0	8.7	8.7
Summer Half-Hourly Service Frequency Extension to Truckee	0.0	0.0	0.0	1.9	2.7
Off-Season Half-Hourly North Shore Service	5.2	11.5	12.1	12.1	12.1
Elimination of Skier Shuttle	-1.5	-1.5	-1.5	-1.5	-1.5
Total: Financially Constrained Service Plan Elements	24.7	54.3	108.1	120.0	120.8
Total Ridership	400.1	429.7	483.5	495.4	496.2
% Growth	*7%*	*14%*	*29%*	*32%*	*32%*
Financially Unconstrained Service Plan Elements					
Winter Evening Service Extension to Truckee	0.0	0.0	0.0	8.8	11.9
Summer Evening Service Extension to Truckee	0.0	0.0	0.0	3.6	4.8
Off-Season Evening Service Extension to Truckee	0.0	0.0	0.0	1.0	1.3
Elimination of Direct Passenger Fares	0.0	0.0	0.0	204.3	204.3
Total: Financially Unconstrained Service Plan Elements	0.0	0.0	0.0	217.7	222.3
Total All Service Plan Elements	400.1	429.7	483.5	713.1	718.5
% Growth	*7%*	*14%*	*29%*	*90%*	*91%*

Note 1: Base case ridership includes estimated year-round 267 ridership, skier shuttle ridership, and Night Service ridership. No trend in ridership is assumed.
Source: LSC Transportation Consultants, Inc.

one hour to provide (including deadhead travel and passenger loading/unloading time), this is only 28 vehicle-hours per year. At present, the Town's contract with Paratransit Services, Inc. identifies a rate of $38.59 per revenue service hour plus a monthly fixed rate of $19,295.10. These costs do not include fuel and vehicle maintenance (which are provided separately by the Town.) At this rate, the marginal cost of serving existing TART ADA wheelchair users would be $1,080 per year. It would be reasonable that the contractor also be paid for a portion of fixed costs, and for their ability on a stand-by basis. While this would be a matter of negotiation, for purposes of this plan a cost impact of $5,000 per year is included. In addition, the fuel and vehicle maintenance (provided directly by the County) would total approximately $1,300 per year.

As an aside, an option was also considered to shift all ADA trips (including those not requiring a wheelchair-accessible vehicle) to the Truckee contractor. An initial evaluation indicates that this could be a viable option assuming current ridership levels, depending upon negotiated total monthly and hourly rates, and the potential for contractor costs associated with expansion of dispatch hours. TART management should consider this in the future, based upon the results of the ADA service contracting arrangement.

FINANCIALLY UNCONSTRAINED SERVICE PLAN

Service improvements that are included in the plan but are not financially sustainable given reasonably foreseeable funding sources consist of the following.

Free Transit Boardings throughout the TART System

Transit fares paid by the passenger will be eliminated, including for boardings in Truckee and in Washoe County. Instead, TOT funding will be used to "pre-pay" all existing transit fare revenues. This will bring TART in line with the transit programs of other major mountain resort communities, including Mammoth Lakes, Park City, Vail, Summit County (Colorado) and Aspen.

The implementation of "free transit" to the passenger will significantly increase ridership. The additional demand will trigger the need for additional capacity during the busy winter season. A review of ridership boardings indicates that four additional vehicle-hours of service will need to be implemented each on the SR 89 route between Squaw Valley and Tahoe City, on the North Shore between Tahoe City and Crystal Bay, and on the SR 267 route between Northstar and Crystal Bay.

Transit services that have shifted from fare systems to free-fare have generally seen ridership increases on the order of 50 percent. The most recent examples are Corvallis, Oregon (which saw a 43 percent increase in ridership in the first two months after elimination of fares in 2011) and the Mountainline system in Missoula, Montana (which only eliminated fares in January 2015, but which saw a 50 percent increase in ridership after 6 months). Given the convenience of free-fare service to visitors to the Tahoe Region, a 50 percent ridership increase is

reasonable, indicating that existing ridership will increase by an estimated 188,300 riders per year.

Evening Service Improvement to Truckee

Once additional funding has been defined, evening service improvements should be extended beyond Squaw Valley Road and Northstar Drive to include 89 and 267 services to Truckee (including off-season evening service).

CAPITAL PLAN

The following capital improvements will be completed over the coming five years. Costs are shown in Table 26.

Fleet Improvement Plan

Of the existing fleet, two buses will require replacement in 2017/18, two in 2018/19 and four in 2020/21. This will provide an ongoing fleet of 14 buses. The financially constrained service plan elements will increase the peak number of buses in operation from the current 8 up to 11. To provide adequate spare buses to efficiently accommodate scheduled maintenance and buses out of service, a fleet of 15 is needed. One additional vehicle will therefore be purchased. A unit price of $534,000 is assumed (based upon the cost of the most recent bus purchases) increasing with inflation. All new buses will be equipped with automatic stop annunciators.

If the additional financially unconstrained improvements are implemented, an additional two buses will be required. Placer County should explore the potential of including electric battery propulsion vehicles in the TART fleet. Recent improvements in battery technology have begun to address the range limitations in electric battery buses to the point where some models can travel 150 to 200 miles between charges, making them feasible for use on some TART service elements. The use of zero-emission vehicles could also expand funding opportunities.

Bus Stop Improvement Plan

Bus stops are an important element of a successful public transit system. Particularly for "choice" riders with access to a car, the comfort and safety perceived by persons waiting at a bus stop can be crucial in passenger's overall perception of the transit program, and can well make or break an individual's decision to be a regular transit user.

A "North Stateline Transit Center" consists of improvements to existing bus stops at North Stateline. This location make for a better transit center/transfer location than Kings Beach, as it provides direct access to North Stateline from the North Shore and 267 corridor without the need to transfer in Kings Beach, it provides direct service across Kings Beach without the need to transfer, it works well with running times for North Shore, Incline Village, and SR267 routes, and it provides a good location to turn buses around, on streets without residences (which

TABLE 26: TART Short Range Transit Capital Plan

All Figures in Thousands

Plan Element	FY 16-17	FY 17-18	FY 18-19(1)	FY 19-20	FY 20-21
FINANCIALLY CONSTRAINED					
Capital Plan Elements					
Buses					
- Replacement Buses	*0*	*2*	*2*	*0*	*4*
- Expansion Buses	*0*	*1*	*0*	*0*	*0*
- Total Buses	*0*	*3*	*2*	*0*	*4*
- Costs	$0.0	$1,604.0	$1,090.0	$0.0	$2,263.2
Bus Stop Improvements	$115.0	$117.2	$119.4	$121.7	$124.0
Crystal Bay Transit Stop Enhancements	$0.0	$60.0	$0.0	$0.0	$0.0
Total: Capital Plan Elements	*$115.0*	*$1,781.2*	*$1,209.4*	*$121.7*	*$2,387.3*
Capital Plan Revenues					
FTA 5311	*$0.0*	*$102.2*	*$10.0*	*$0.0*	*$200.0*
FTA 5339 Through Caltrans	*$0.0*	*$30.0*	*$319.4*	*$0.0*	*$300.0*
FTA 5339 Through NDOT	*$0.0*	*$227.4*	*$200.0*	*$0.0*	*$345.0*
FTA 5307	*$0.0*	*$427.0*	*$0.0*	*$0.0*	*$0.0*
Washoe County	*$0.0*	*$0.0*	*$0.0*	*$0.0*	*$0.0*
Placer County Traffic Fee Program - Tahoe	*$19.0*	*$177.0*	*$35.0*	*$21.7*	*$600.0*
Placer County LTF	*$0.0*	*$0.0*	*$545.0*	*$0.0*	*$576.0*
Transient Occupancy Tax	*$65.0*	*$65.0*	*$65.0*	*$65.0*	*$65.0*
Low Carbon Transit Operations Program	*$31.0*	*$30.0*	*$35.0*	*$35.0*	*$35.0*
Congestion Mitigation Air Quality	*$0.0*	*$0.0*	*$0.0*	*$0.0*	*$306.5*
Proposition 1B PTMISEA	*$0.0*	*$722.5*	*$0.0*	*$0.0*	*$0.0*
Total	*$115.0*	*$1,781.1*	*$1,209.4*	*$121.7*	*$2,427.5*
Balance	*$0.0*	*-$0.1*	*$0.0*	*$0.0*	*$40.2*
FINANCIALLY UNCONSTRAINED					
Expansion Buses	*0*	*0*	*2*	*0*	*0*
- Costs	$0.0	$0.0	$1,089.7	$0.0	$0.0

Source: LSC Transportation Consultants, Inc.

could be a problem in Kings Beach). An enhanced shelter should be provided on the north side of SR 28, and bus bays on both sides lengthened to accommodate two buses at a time, on both sides of the highway. (At present, the bus bays are only approximately 50 feet in length, and can only accommodate one bus at a time). The improvements on the north side of SR 28 should be implemented as part of the Boulder Bay development project. On the south side, $80,000 is included in the plan to expand the bus pullout. While just outside of Placer County, these improvements benefit two key TART routes serving Placer County.

TART already has a substantial inventory of bus shelters at key locations. However, new shelters are warranted at the following locations:

- SR 28 Eastbound at Dollar Hill Drive
- SR 28 Eastbound at Coon Street
- SR 28 Westbound at Coon Street
- Northstar Transit Center

Real-time displays of Next Bus information will be provided in five key shelters, including shelters in Squaw Valley, Northstar, Kings Beach and Crystal Bay.

Improvements to Communications System

TART has identified the need for approximately $100,000 of improvements in radio coverage along the transit routes. As this improvement is already budgeted and funded, it is not included in this plan.

MANAGEMENT PLAN

The expansion of the TART program will require expansion in management, dispatch and maintenance capacity.

Expand Management/Dispatch Capacity

At present, the administrative staff onsite at the Cabin Creek Facility consists of a total of four full-time personnel: one Administrative Dispatcher, two Senior Bus Drivers, and one Transportation Supervisor. (In addition, administrative staff based in Auburn also provides management services.) With the expansion in the hours of service (in the off-seasons) as well as the overall scope of the TART transit program, there is the need for one additional Administrative Dispatcher, as well as a Senior Transportation Systems Supervisor. This will increase administrative costs a total of $247,000 per year, including salary and benefits.

Expand Maintenance Capacity

The expansion in hours of service and fleet size will require additional Mechanic hours. In addition, there is a current need for additional maintenance capacity to more efficiently schedule preventive maintenance. Overall, 12 hours per week of additional Mechanic hours are

included in the plan, consisting of a full workday on Saturday and four additional hours during the work week.

Expand Marketing

Current marketing budgets for TART services are below the transit industry standard of 3 percent of total operating budget. Particularly for a resort system striving to attract visitors, marketing is an important means to generate increased use. An expansion of marketing budget of $50,000 per year (rising with inflation) is included in this plan.

FINANCIAL PLAN

Operating

The impacts of this plan on year-by-year operating costs are shown in Table 27. These figures assume the implementation schedule discussed above. The impact of this plan on annual operating costs rise up to $2,040,700 by FY 2020/21. Beyond the continuation of existing operating funding sources (including Town of Truckee funding for SR 89 and SR 267 services per the current agreement), key operating funding sources are discussed below and shown in Table 28.

Reasonably Foreseeable New Funding Sources

FTA Section F307 Urbanized Area Grant Funds

Through efforts of the Tahoe Transportation District, the Tahoe Metropolitan Planning Organization (TMPO) was designated as a valid recipient of Federal Transit Administration (FTA) Section 5307 Urban Grant Funds, as part of the Fixing America's Surface Transportation (FAST) Act. At present, the final administrative procedures for TMPO funding are being worked out, which will impact the ultimate funding levels, but discussions to date indicate that on the order of $3.0 Million per year in 5307 funding will be available to the Tahoe Region as a whole. Based upon historic allocation methodologies, this will result in roughly $1.0 Million for North Shore transit program. As the provision of "urban" funding will reduce the region's ability to access "rural" funding, the net impact of this new funding source will be an increase in federal transit funding for the TART program of approximately $600,000 per year. These funds will be used for service expansion within the Tahoe Basin.

Expanded County Service Area Funding

At present, TART benefits from funds collected through a series of Zones of Benefit (ZOB) established in under a County Service Area in the Martis Valley area as a result of the Martis Valley Area Plan. These ZOBs add a fee of (currently equal to $36.36 per single family residence, as an example) to annual property tax bills for new development since establishment of the fee in this area. To help fund expansion of transit services triggered in part due to new

TABLE 27 : TART Short Range Transit Plan Operating/Administrative Costs

All Figures in Thousands

Plan Element	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21
Base Case Operating Costs	$4,360.29	$4,444.00	$4,529.33	$4,616.31	$4,704.98
Financially Constrained Plan Elements					
Expand Summer Season	$13.5	$85.2	$86.8	$88.4	$90.1
Peak Season Evening Service Expansion: South of Squaw Valley and Northstar	$0.0	$54.9	$121.4	$123.7	$126.1
Off-Season Evening Service Expansion: South of Squaw Valley and Northstar	$0.0	$176.7	$180.1	$183.5	$187.0
Additional Morning Winter 267 Run	$10.6	$10.8	$11.0	$11.2	$11.4
Winter Half-Hourly North Shore Service Frequency	$107.4	$0.0	$0.0	$0.0	$0.0
Peak Season Half-Hourly Service: South of Squaw Valley and Northstar	$0.0	$289.5	$722.4	$736.1	$750.2
Winter Half-Hourly Service Frequency Extension to Truckee	$0.0	$0.0	$221.3	$225.5	$229.8
Summer Half-Hourly Service Frequency Extension to Truckee	$0.0	$0.0	$28.6	$180.9	$184.3
Off-Season Half-Hourly North Shore Service	$55.4	$118.9	$121.2	$123.5	$125.8
Elimination of Skier Shuttle	($33.5)	($34.2)	($34.8)	($35.5)	($36.2)
Additional Administrative/Dispatch Staff	$0.0	$251.9	$257.0	$262.1	$267.4
Contracted ADA Wheelchair Trips	$6.3	$6.4	$6.5	$6.7	$6.8
Expanded Marketing	$50.0	$51.0	$52.0	$53.1	$54.1
Additional Mechanic Capacity	$0.0	$41.3	$42.1	$43.0	$43.8
Total: Financially Constrained Service Plan Elements	$209.7	$1,052.6	$1,815.6	$2,002.2	$2,040.7
Total With Financially Constrained Plan Elements	*$4,570.0*	*$5,496.6*	*$6,344.9*	*$6,618.5*	*$6,745.7*
Percent Increase over Base Case	*4.8%*	*23.7%*	*40.1%*	*43.4%*	*43.4%*
Financially Unconstrained Plan Elements					
Winter Evening Service Extension to Truckee	$0.0	$0.0	$0.0	$181.4	$184.8
Summer Evening Service Extension to Truckee	$0.0	$0.0	$0.0	$145.5	$148.3
Off-Season Evening Service Extension to Truckee	$0.0	$0.0	$0.0	$63.8	$65.1
Elimination of Transit Fares - Added Winter Runs	$0.0	$0.0	$0.0	$184.4	$187.9
Total: Financially Unconstrained Service Plan Elements	$0.0	$0.0	$0.0	$575.1	$586.1
Total Plan Elements	$209.7	$1,052.6	$1,815.6	$2,577.3	$2,626.8
Total Costs With All Plan Elements	$4,570.0	$5,496.6	$6,344.9	$7,193.6	$7,331.7

Inflation assumed of 2.0% for labor/contracts and 1.5% for supplies/fuel.

Source: LSC Transportation Consultants, Inc.

TABLE 28: TART Transit Short-Range Operating Financial Plan

All Figures in Thousands

	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21
Financially Constrained Financial Plan					
Financially Constrained Operating Costs (From Table 27)	$4,570.0	$5,496.6	$6,344.9	$6,618.5	$6,745.7
Operating Revenues					
Fare Revenues	$436.0	$488.9	$597.2	$718.8	$841.4
Local Transportation Funds					
Placer County Transportation Agency	$1,033.7	$1,064.7	$1,096.7	$1,129.6	$1,163.4
Tahoe Regional Planning Agency	$698.1	$719.0	$740.6	$762.8	$785.7
Truckee -- for 89 Route	$67.5	$69.6	$71.7	$73.8	$76.0
Truckee -- for 267 Route	$37.1	$38.2	$39.3	$40.5	$41.7
State Transportation Assistance					
Placer County Transportation Agency	$92.8	$92.8	$92.8	$92.8	$92.8
Tahoe Regional Planning Agency	$164.9	$164.9	$164.9	$164.9	$164.9
Local Option Sales Tax Revenues	$0.0	$734.4	$749.1	$764.1	$779.4
Truckee Air Pollution Control District Funds	$63.6	$64.9	$66.2	$67.5	$68.9
Truckee Tahoe Airport	$63.8	$65.0	$66.3	$67.7	$69.0
Low Carbon Transit Operations Program	$39.4	$40.2	$41.0	$41.8	$42.6
Private Funding	$51.0	$52.0	$53.1	$54.1	$55.2
Transient Occupancy Tax	$823.3	$450.6	$958.3	$995.9	$866.6
Federal Transit Administration Section 5311 Rural					
Through Placer County Transportation Agency	$250.0	$250.0	$260.0	$260.0	$270.0
Federal Transit Administration Section 5307 Urban - NV	$350.0	$357.0	$364.1	$371.4	$378.9
Federal Transit Administration Section 5307 Urban - CA	$173.0	$612.0	$624.2	$636.7	$649.5
Washoe Regional Transportation Commission	$171.9	$175.4	$178.9	$182.4	$186.1
County Service Area Funding	$51.0	$54.0	$58.0	$71.0	$91.0
Development Agreements	$0.0	$0.0	$119.70	$119.70	$119.7
Interest	$3.0	$3.0	$3.0	$3.0	$3.0
TOTAL	$4,570.0	$5,496.6	$6,344.9	$6,618.5	$6,745.7
Financially Constrained Operating Funding Balance	$0.0	$0.0	$0.0	$0.0	$0.0
Financially Unconstrained Subsidy Requirements					
Financially Unconstrained Additional Operating Costs	$0.0	$0.0	$0.0	$575.1	$586.1
Elimination of Transit Fares - Impact on Subsidy Requirements	$0.0	$0.0	$0.0	$718.8	$841.4
Total Additional Subsidy Required to Achieve Full Plan	$0.0	$0.0	$0.0	$1,293.9	$1,427.4

Source: LSC Transportation Consultants, Inc.

development, Placer County will establish similar ZOBs in the Squaw Valley / Alpine Meadows area and the Tahoe Basin portion of Placer County. Some of these may be as a result of reductions in parking requirements. This will result in ongoing revenues generated by new development throughout the eastern Placer County area. As revenues will be a factor of actual new construction, specific revenue forecasts are a matter of conjecture. For purposes of this plan, CSA revenues are assumed to increase from the current level of approximately $50,000 per year, up to $91,000 by the end of this plan period, with funds from new development starting to be generated in Year 3 of the program.

Contributions from Developers

Beyond funds generated by existing and new CSA's, the County will negotiate with individual developers of major projects for "up front" funding of operating expansions. A total of $119,700 in developer agreement funds are included in this plan, starting in Year 3.

Capital

Capital funding is shown in the bottom portion of Table 26, above. As indicated, numerous sources will be used. In total, these funds fully address capital costs, except for a funding shortfall in the second year of the program.

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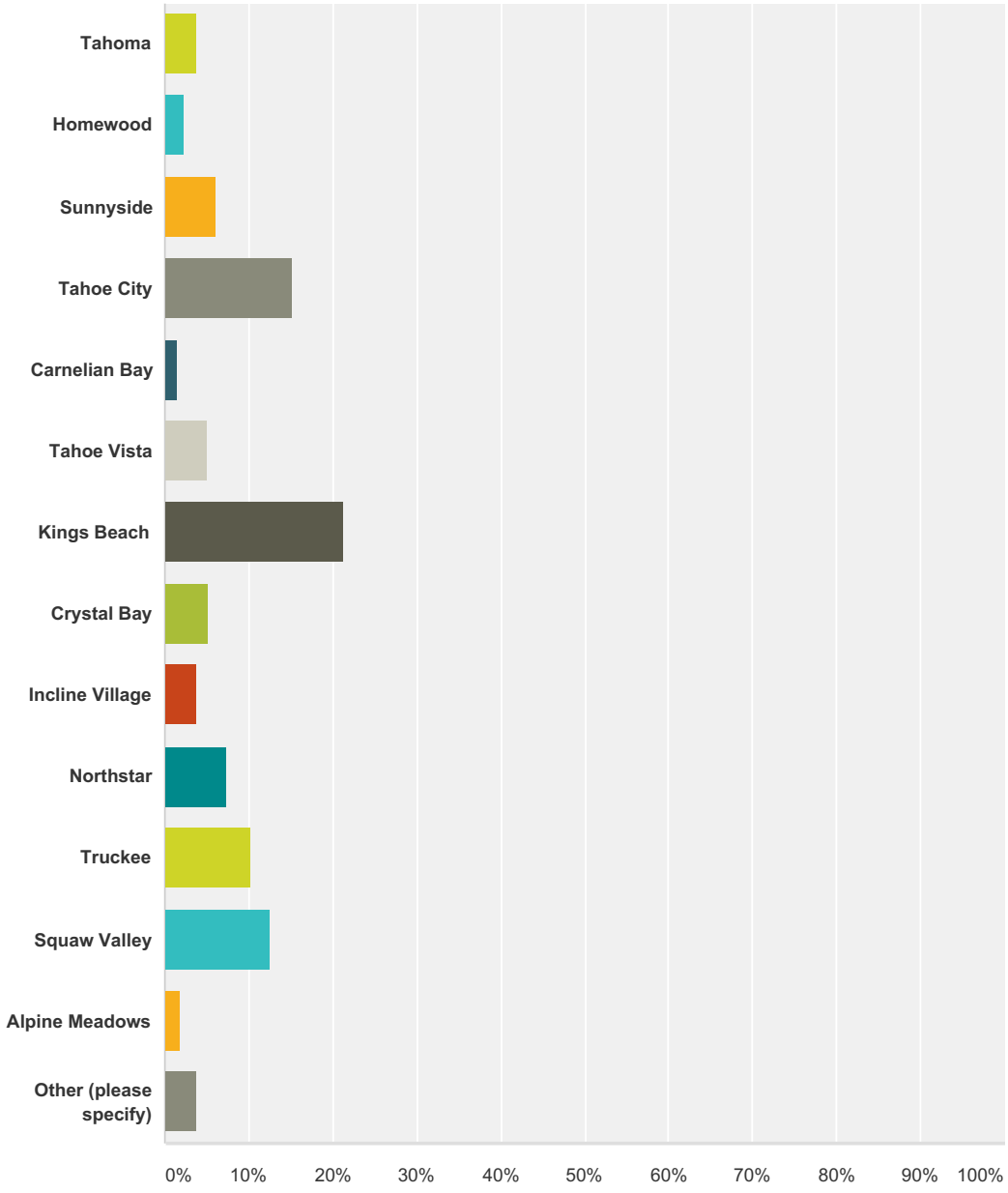
Appendix A

Detailed Transit Passenger Survey Results

Q1 I am coming from:

Answered: 263 Skipped: 1

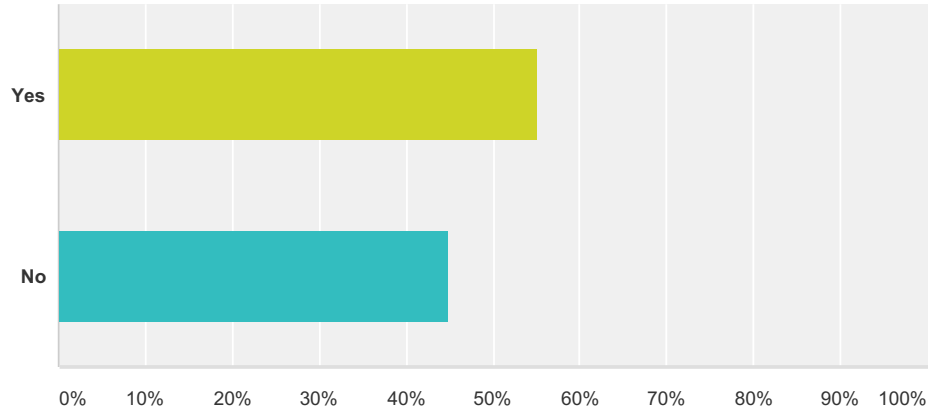


Answer Choices	Responses	
Tahoma	**3.80%**	10
Homewood	**2.28%**	6
Sunnyside	**6.08%**	16
Tahoe City	**15.21%**	40
Carnelian Bay	**1.52%**	4
Tahoe Vista	**4.94%**	13

Kings Beach	**21.29%**	56
Crystal Bay	**5.32%**	14
Incline Village	**3.80%**	10
Northstar	**7.22%**	19
Truckee	**10.27%**	27
Squaw Valley	**12.55%**	33
Alpine Meadows	**1.90%**	5
Other (please specify)	**3.80%**	10
Total		**263**

Q2 Is this home?

Answered: 209 Skipped: 55



Answer Choices	Responses	
Yes	**55.02%**	115
No	**44.98%**	94
Total		**209**

Q3 I got on the bus at:

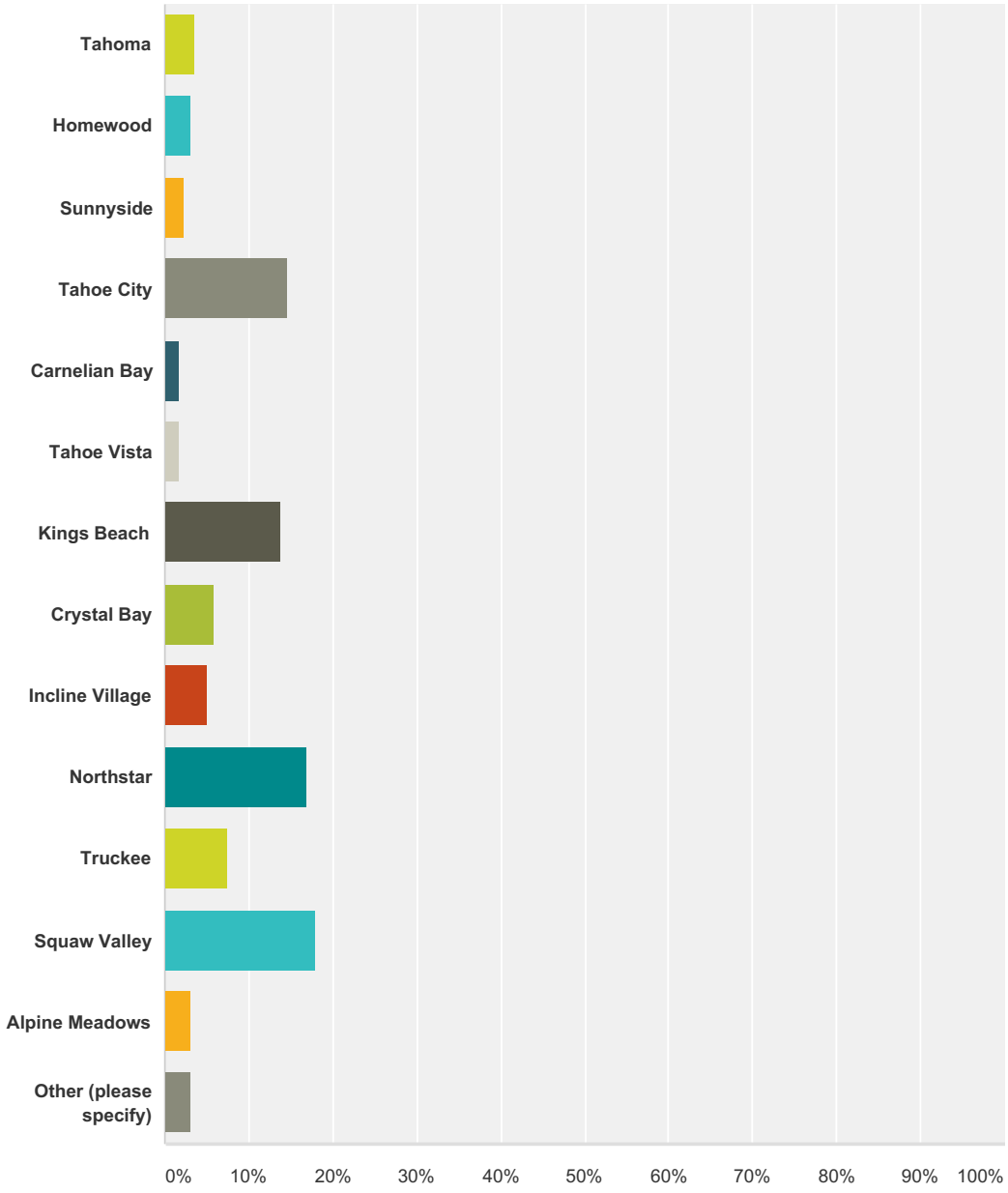
Answered: 257 Skipped: 7

Q4 I am getting off this bus at:

Answered: 253 Skipped: 11

Q5 I am going to:

Answered: 255 Skipped: 9

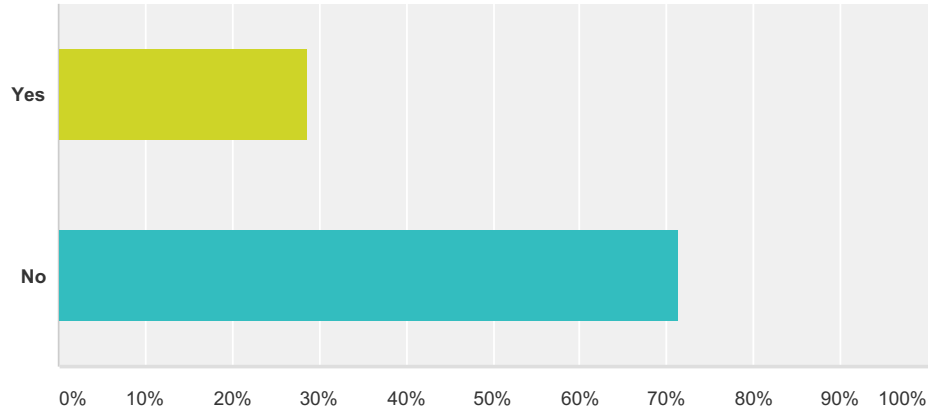


Answer Choices	Responses	
Tahoma	**3.53%**	9
Homewood	**3.14%**	8
Sunnyside	**2.35%**	6
Tahoe City	**14.51%**	37
Carnelian Bay	**1.57%**	4
Tahoe Vista	**1.57%**	4
Kings Beach	**13.73%**	35
Crystal Bay	**5.88%**	15
Incline Village	**5.10%**	13

Northstar	**16.86%**	43
Truckee	**7.45%**	19
Squaw Valley	**18.04%**	46
Alpine Meadows	**3.14%**	8
Other (please specify)	**3.14%**	8
Total		**255**

Q6 Is this home?

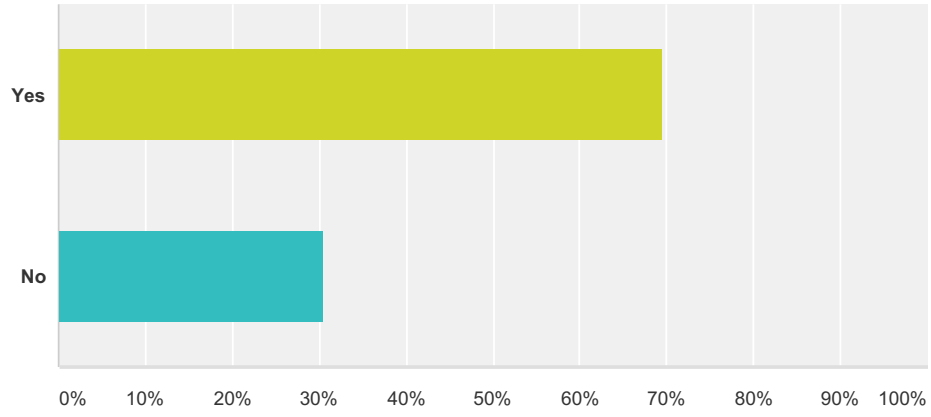
Answered: 147 Skipped: 117



Answer Choices	Responses	
Yes	**28.57%**	42
No	**71.43%**	105
Total		**147**

Q7 Will you be traveling roundtrip on TART today?

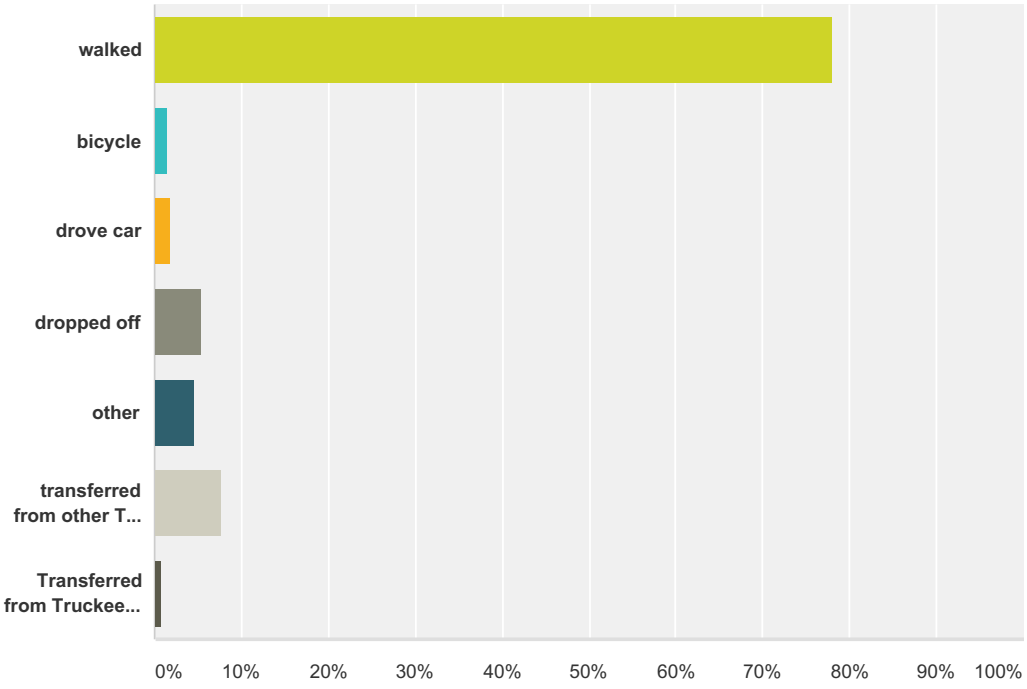
Answered: 237 Skipped: 27



Answer Choices	Responses	
Yes	**69.62%**	165
No	**30.38%**	72
Total		**237**

Q8 How did you travel to this bus?

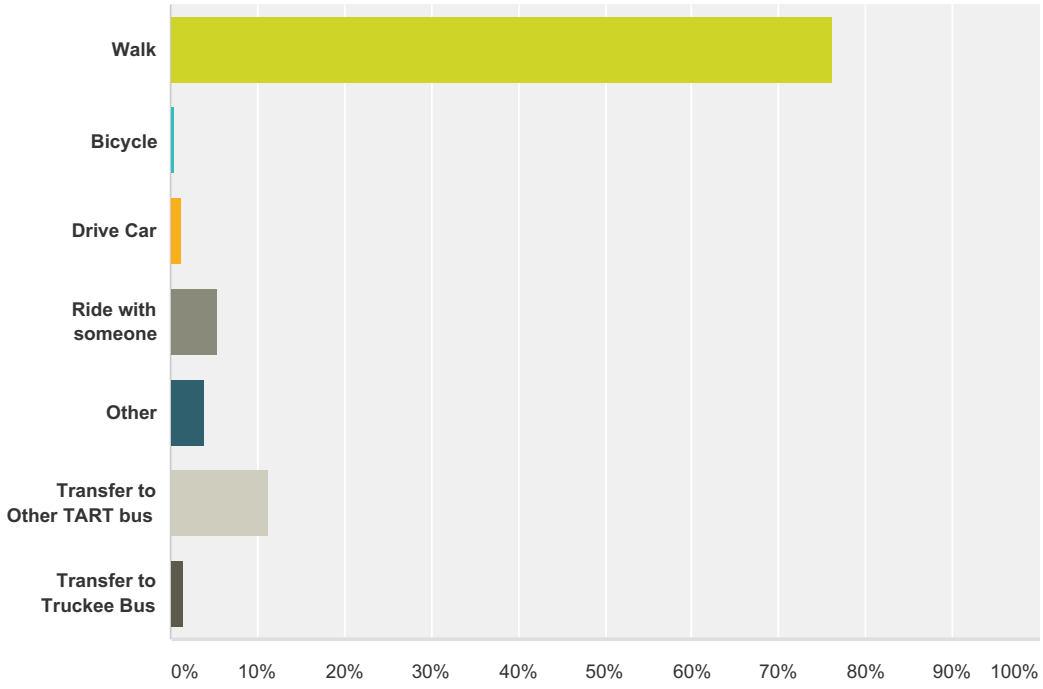
Answered: 259 Skipped: 5



Answer Choices	Responses	
walked	**77.99%**	202
bicycle	**1.54%**	4
drove car	**1.93%**	5
dropped off	**5.41%**	14
other	**4.63%**	12
transferred from other TART bus	**7.72%**	20
Transferred from Truckee Bus	**0.77%**	2
Total		**259**

Q9 After leaving this bus, how will you complete your trip?

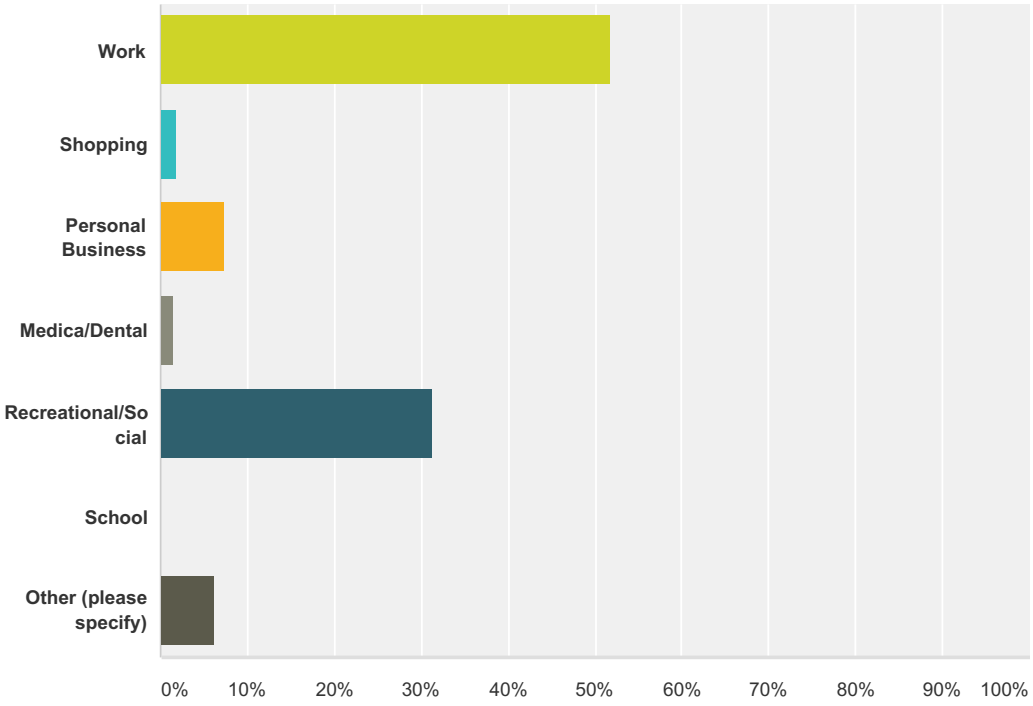
Answered: 257 Skipped: 7



Answer Choices	Responses	
Walk	**76.26%**	196
Bicycle	**0.39%**	1
Drive Car	**1.17%**	3
Ride with someone	**5.45%**	14
Other	**3.89%**	10
Transfer to Other TART bus	**11.28%**	29
Transfer to Truckee Bus	**1.56%**	4
Total		**257**

Q10 What is the purpose of this trip today?

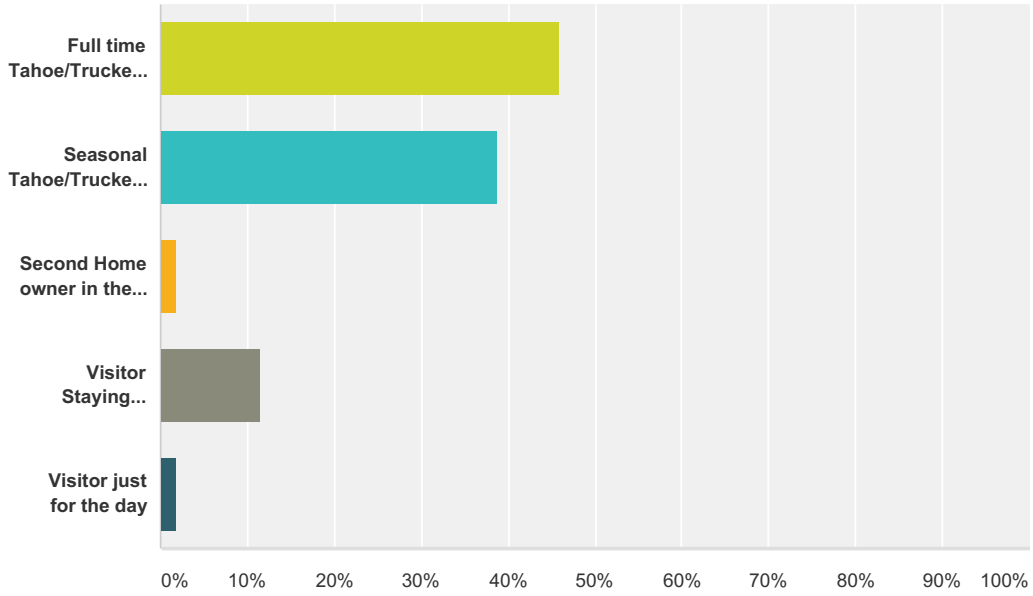
Answered: 259 Skipped: 5



Answer Choices	Responses	
Work	**51.74%**	134
Shopping	**1.93%**	5
Personal Business	**7.34%**	19
Medica/Dental	**1.54%**	4
Recreational/Social	**31.27%**	81
School	**0.00%**	0
Other (please specify)	**6.18%**	16
Total		**259**

Q11 Are you a (specify one):

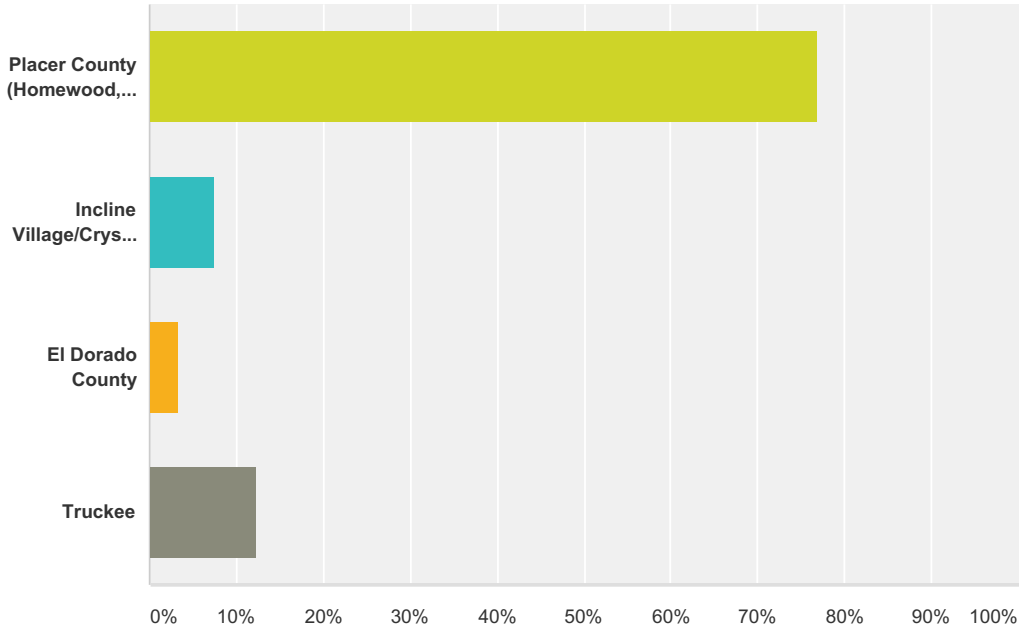
Answered: 253 Skipped: 11



Answer Choices	Responses	
Full time Tahoe/Truckee resident	**45.85%**	116
Seasonal Tahoe/Truckee resident	**38.74%**	98
Second Home owner in the Tahoe/Truckee area	**1.98%**	5
Visitor Staying overnight	**11.46%**	29
Visitor just for the day	**1.98%**	5
Total		**253**

Q12 If you are a resident or worker, where do you live in this area (specify one):

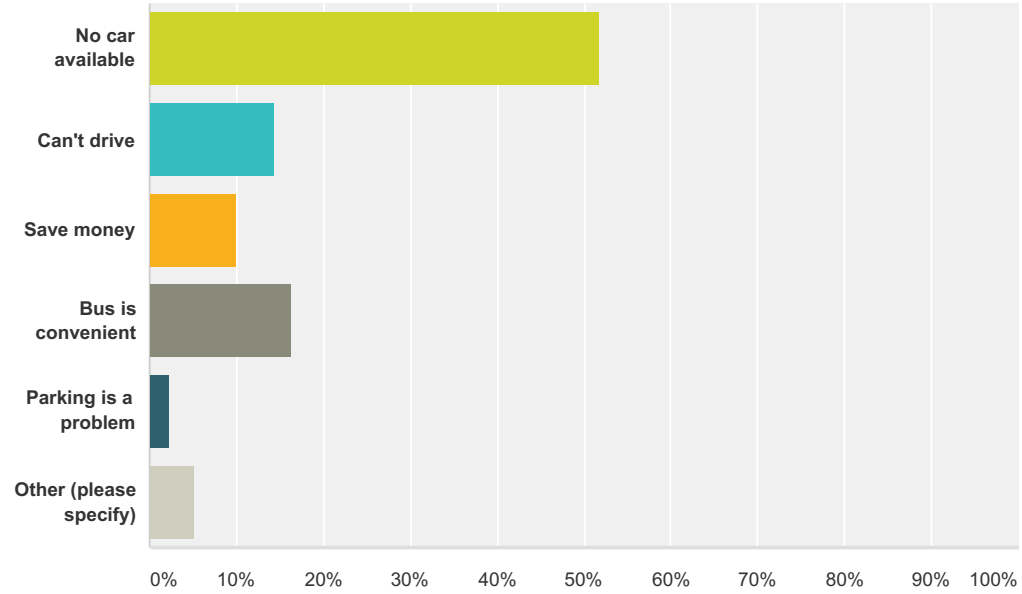
Answered: 211 Skipped: 53



Answer Choices	Responses	
Placer County (Homewood, Sunnyside, Tahoe City, Carn. Bay, Tahoe Vista, Kings Beach, Northstar, Squaw Valley, Alpine Meadows)	**76.78%**	162
Incline Village/Crystal Bay	**7.58%**	16
El Dorado County	**3.32%**	7
Truckee	**12.32%**	26
Total		**211**

Q13 What is the most important reason you use TART?

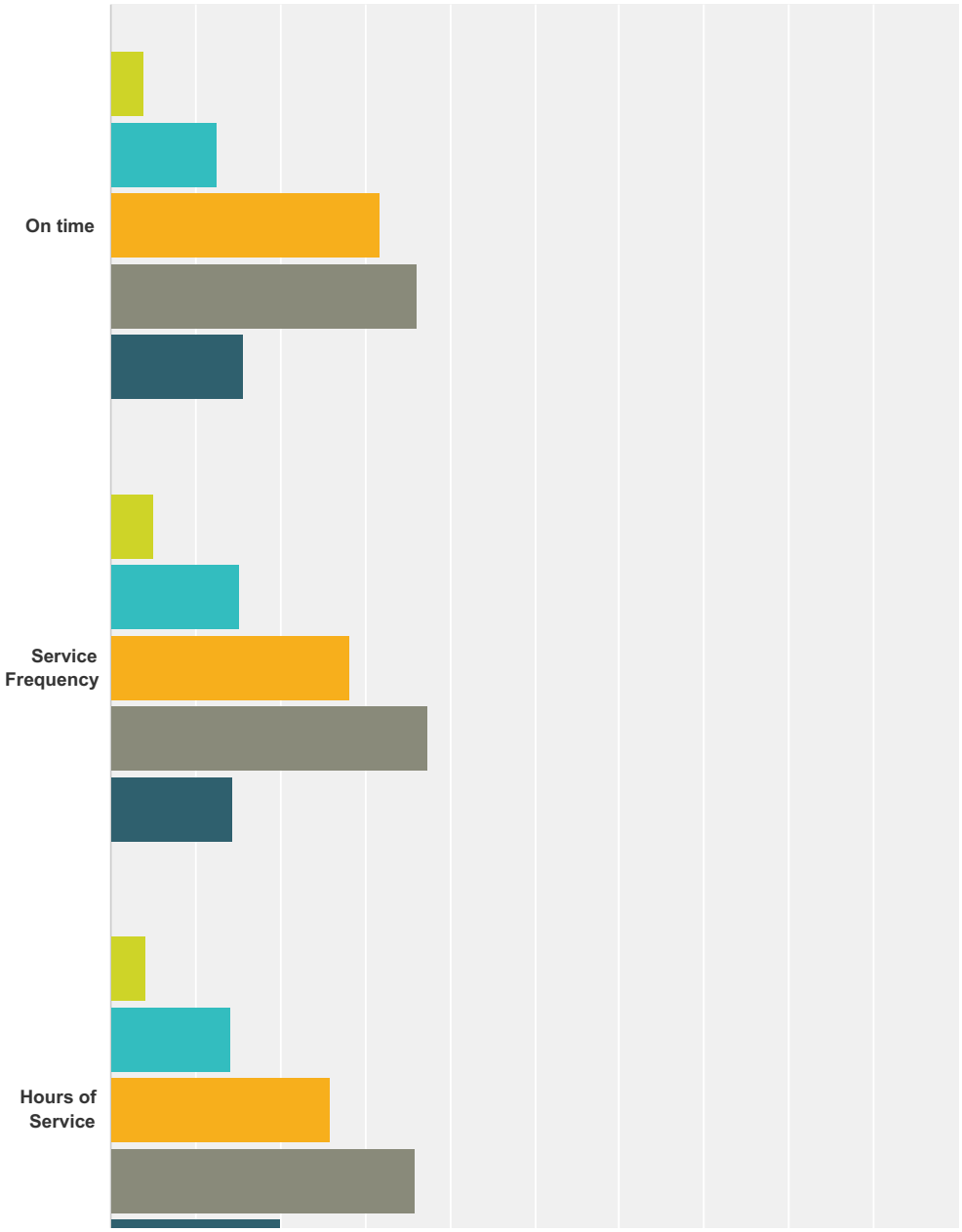
Answered: 251 Skipped: 13

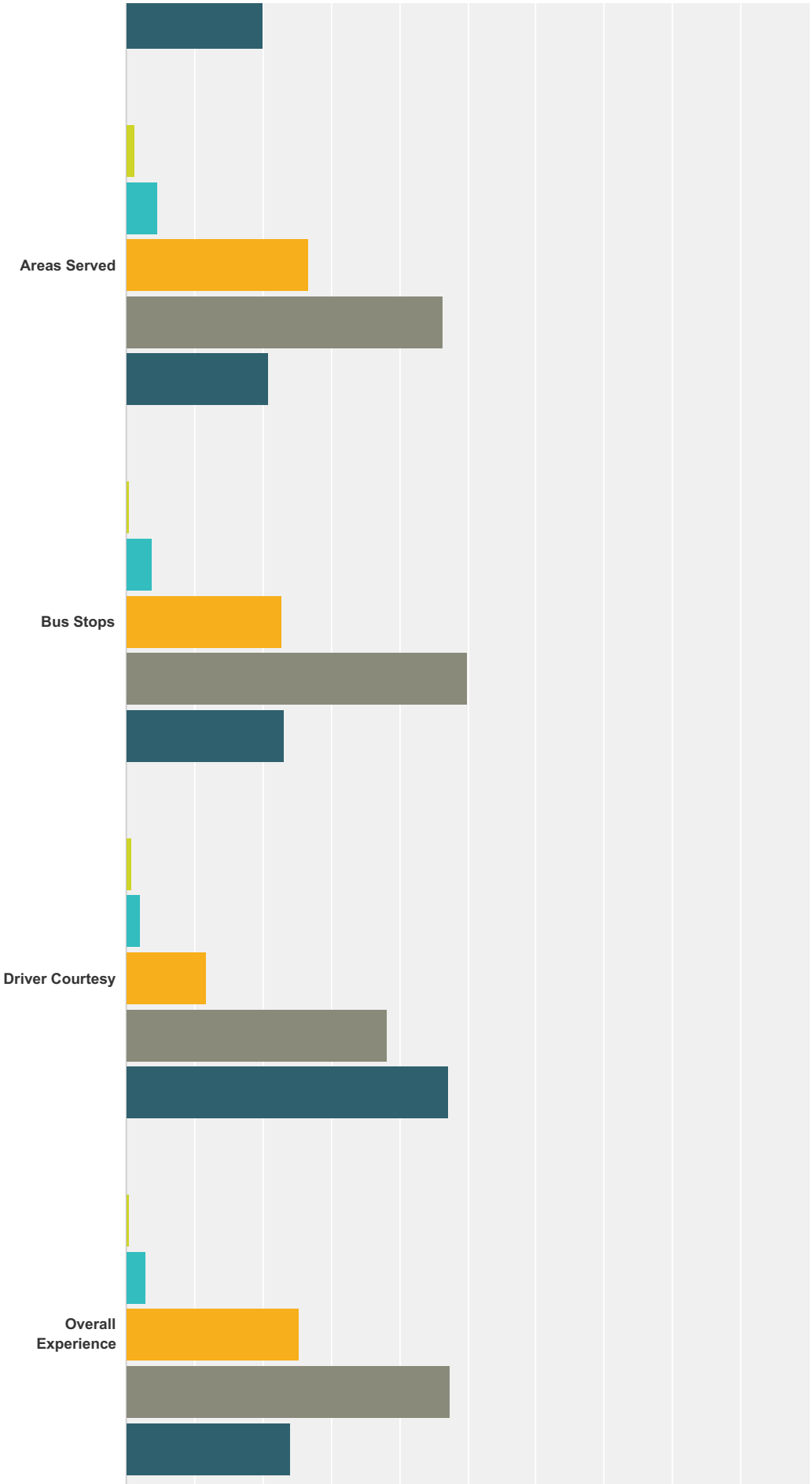


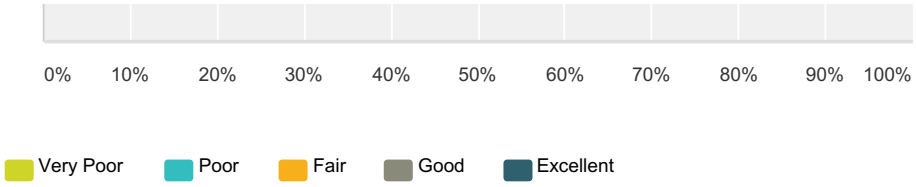
Answer Choices	Responses	
No car available	**51.79%**	130
Can't drive	**14.34%**	36
Save money	**9.96%**	25
Bus is convenient	**16.33%**	41
Parking is a problem	**2.39%**	6
Other (please specify)	**5.18%**	13
Total		**251**

Q14 Please Rate TART service for each of the following:

Answered: 253 Skipped: 11



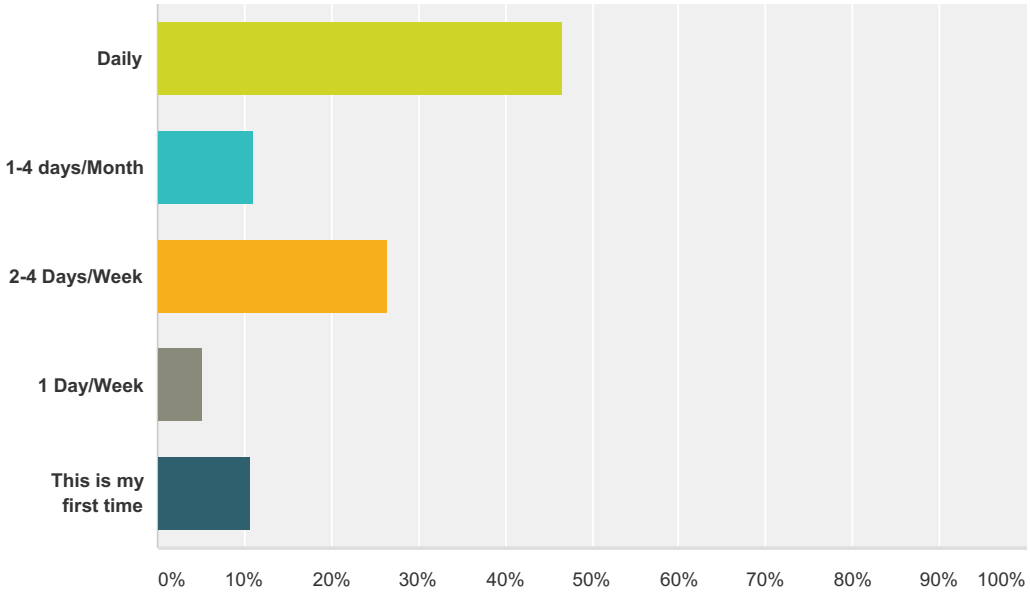

Areas Served
Bus Stops
Driver Courtesy
Overall Experience



	Very Poor	Poor	Fair	Good	Excellent	Total
On time	**4.02%** 10	**12.45%** 31	**31.73%** 79	**36.14%** 90	**15.66%** 39	249
Service Frequency	**4.92%** 12	**15.16%** 37	**28.28%** 69	**37.30%** 91	**14.34%** 35	244
Hours of Service	**4.17%** 10	**14.17%** 34	**25.83%** 62	**35.83%** 86	**20.00%** 48	240
Areas Served	**1.26%** 3	**4.60%** 11	**26.78%** 64	**46.44%** 111	**20.92%** 50	239
Bus Stops	**0.41%** 1	**3.72%** 9	**22.73%** 55	**50.00%** 121	**23.14%** 56	242
Driver Courtesy	**0.81%** 2	**2.03%** 5	**11.79%** 29	**38.21%** 94	**47.15%** 116	246
Overall Experience	**0.41%** 1	**2.90%** 7	**25.31%** 61	**47.30%** 114	**24.07%** 58	241

Q15 How often do you ride TART?

Answered: 253 Skipped: 11

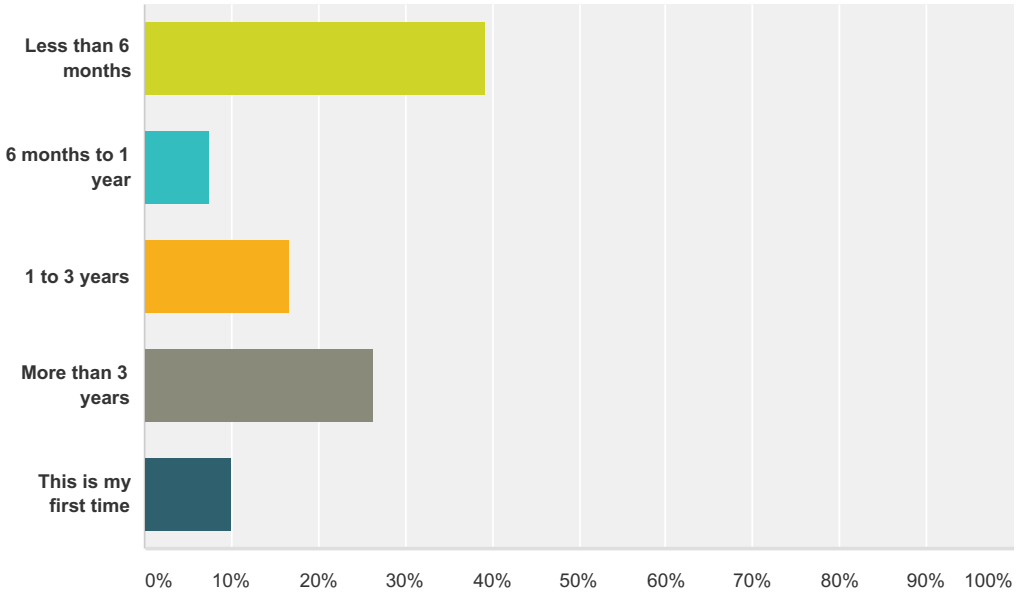


Answer Choices	Responses	
Daily	**46.64%**	118
1-4 days/Month	**11.07%**	28
2-4 Days/Week	**26.48%**	67

1 Day/Week	**5.14%**	13
This is my first time	**10.67%**	27
Total		**253**

Q16 How long have you been using TART?

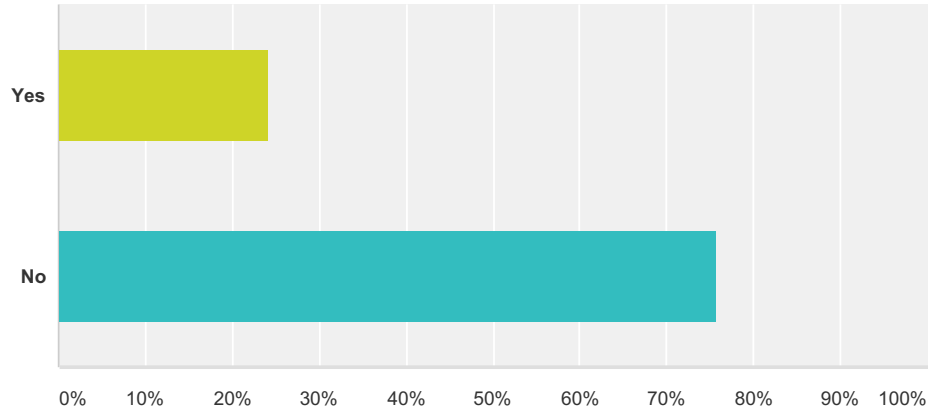
Answered: 250 Skipped: 14



Answer Choices	Responses	
Less than 6 months	**39.20%**	98
6 months to 1 year	**7.60%**	19
1 to 3 years	**16.80%**	42
More than 3 years	**26.40%**	66
This is my first time	**10.00%**	25
Total		**250**

Q17 Was a car available for this trip?

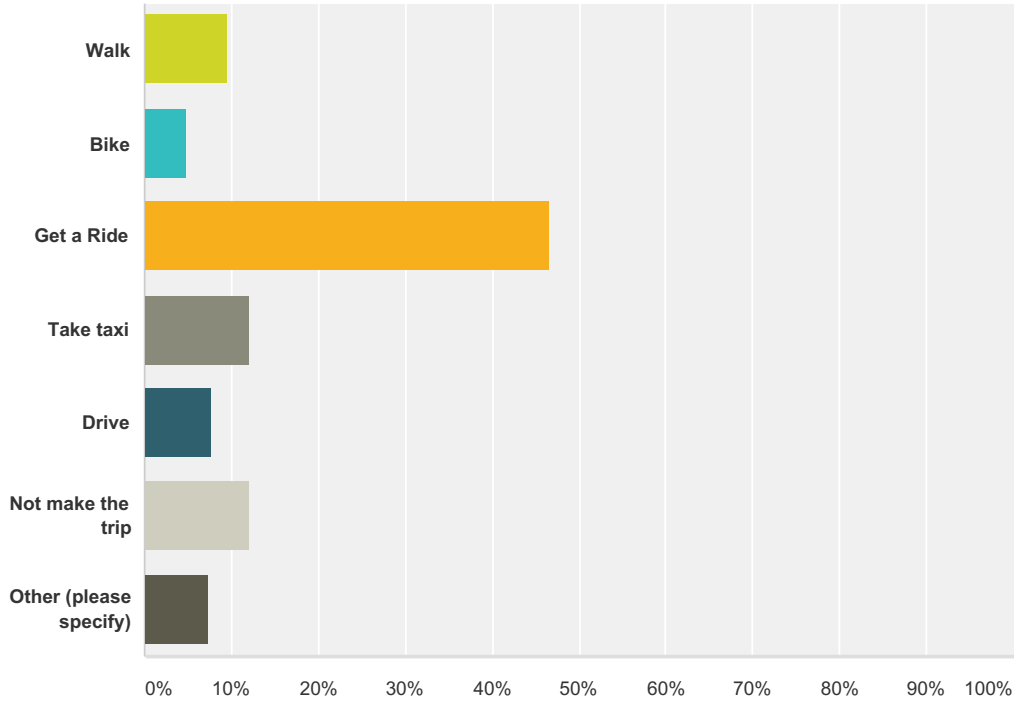
Answered: 228 Skipped: 36



Answer Choices	Responses	
Yes	**24.12%**	55
No	**75.88%**	173
Total		**228**

Q18 If the TART service were not available, how would you make this trip?

Answered: 249 Skipped: 15

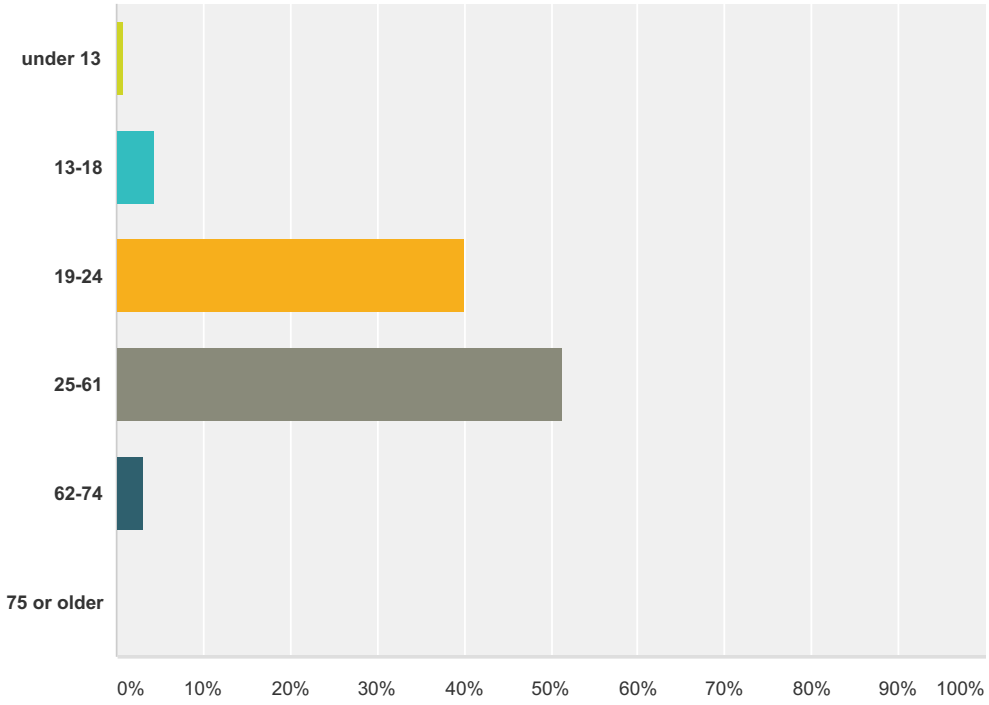


Answer Choices	Responses	
Walk	**9.64%**	24
Bike	**4.82%**	12

Get a Ride	**46.59%**	116
Take taxi	**12.05%**	30
Drive	**7.63%**	19
Not make the trip	**12.05%**	30
Other (please specify)	**7.23%**	18
Total		**249**

Q19 What is your age?

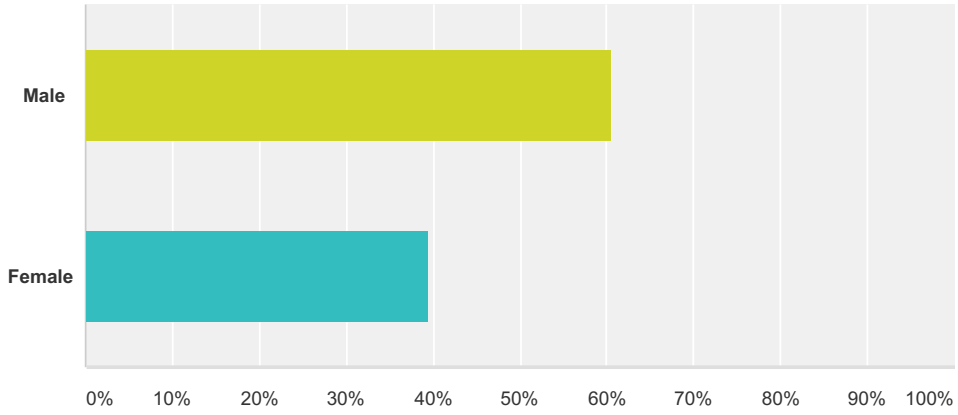
Answered: 249 Skipped: 15



Answer Choices	Responses	
under 13	**0.80%**	2
13-18	**4.42%**	11
19-24	**40.16%**	100
25-61	**51.41%**	128
62-74	**3.21%**	8
75 or older	**0.00%**	0
Total		**249**

Q20 What is your gender?

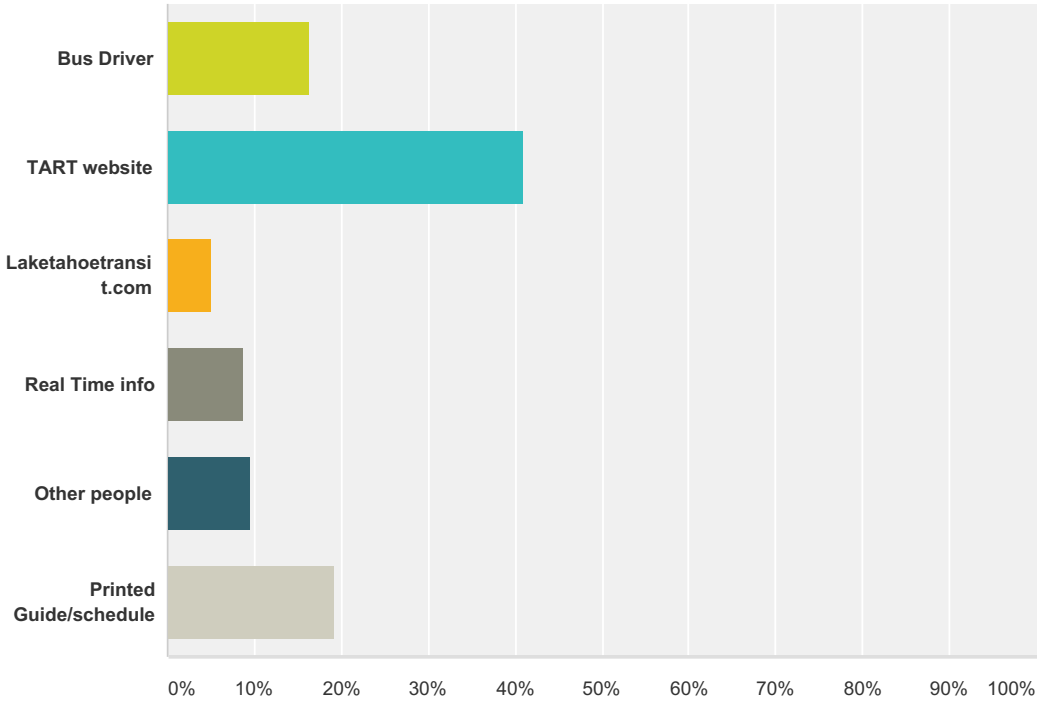
Answered: 236 Skipped: 28



Answer Choices	Responses	
Male	**60.59%**	143
Female	**39.41%**	93
Total		**236**

Q21 What is your primary source of transit information?

Answered: 239 Skipped: 25

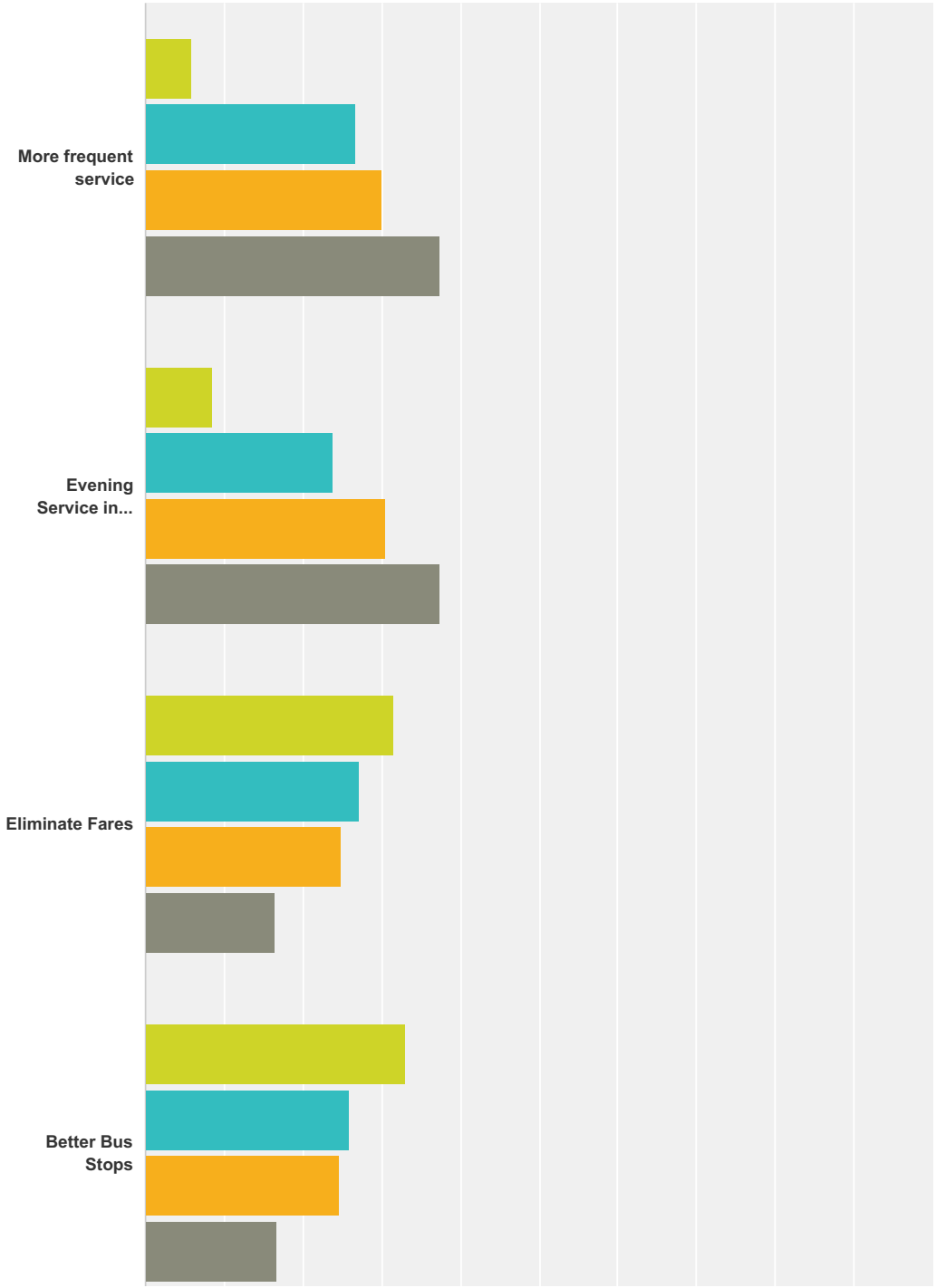


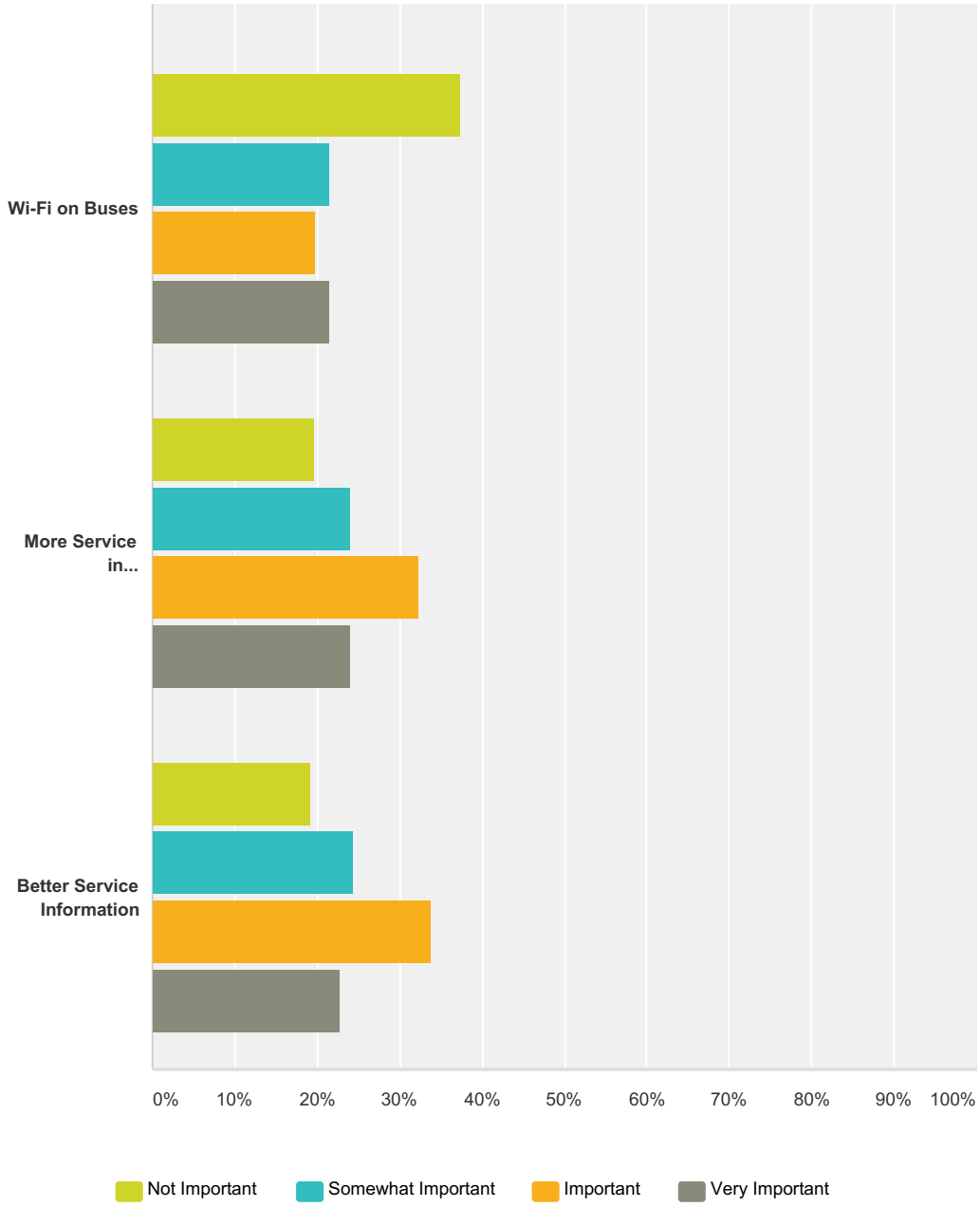
Answer Choices	Responses	
Bus Driver	**16.32%**	39
TART website	**41.00%**	98

Laketahoetransit.com	**5.02%**	12
Real Time info	**8.79%**	21
Other people	**9.62%**	23
Printed Guide/schedule	**19.25%**	46
Total		**239**

Q22 How important are each of the following in improving TART?

Answered: 247 Skipped: 17





	Not Important	Somewhat Important	Important	Very Important	Total
More frequent service	**5.93%** 14	**26.69%** 63	**30.08%** 71	**37.29%** 88	236
Evening Service in Spring/Fall	**8.47%** 20	**23.73%** 56	**30.51%** 72	**37.29%** 88	236
Eliminate Fares	**31.56%** 71	**27.11%** 61	**24.89%** 56	**16.44%** 37	225
Better Bus Stops	**32.89%** 75	**25.88%** 59	**24.56%** 56	**16.67%** 38	228
Wi-Fi on Buses	**37.28%** 85	**21.49%** 49	**19.74%** 45	**21.49%** 49	228
More Service in Neighborhoods	**19.65%** 45	**24.02%** 55	**32.31%** 74	**24.02%** 55	229

Better Service Information	**19.11%** 43	**24.44%** 55	**33.78%** 76	**22.67%** 51	 225

Q23 What is the single most important improvement for bus service?

Answered: 182 Skipped: 82

Q24 Survey

Answered: 264 Skipped: 0

Q25 Route

Answered: 264 Skipped: 0

Q26 Route/Highway

Answered: 210 Skipped: 54

Q27 Leave

Answered: 264 Skipped: 0

Q28 Arrive

Answered: 264 Skipped: 0